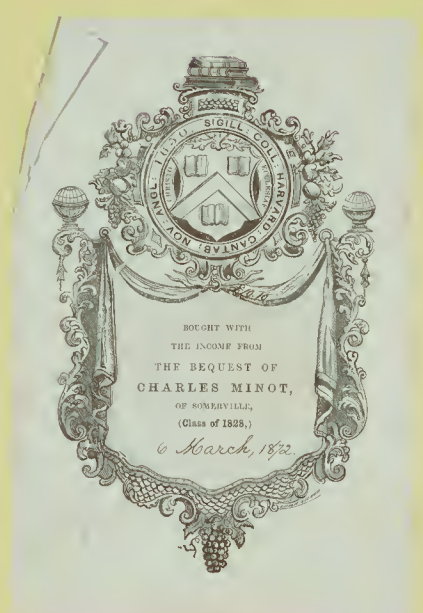


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ZOOLOGICAL SKETCHES
BY
JOSEPH WOLF.
VOL. I.

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ZOOLOGICAL SKETCHES BY JOSEPH WOLF.



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ZOOLOGICAL SKETCHES

BY JOSEPH WOLF.

MADE FOR THE

ZOOLOGICAL SOCIETY OF LONDON,

FROM ANIMALS IN THEIR VIVARIUM,

IN THE REGENT'S PARK.

Edited, with Notes,

BY

PHILIP LUTLEY SCLATER, M.A., PH. D.,

FELLOW OF CORPUS CHRISTI COLLEGE, OXFORD; FELLOW OF THE LINNEAN SOCIETY; MEMBER OF THE IMPERIAL LEOPOLDINO-CAROLINIAN
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SECRETARY TO THE SOCIETY.

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P R E F A C E.

IN the year 1852 the Council of the Zoological Society, impressed with a sense of the great value of an accurate artistic record of the living form and expression of the many rare species of animals which exist from time to time in the Menagerie, resolved to commence the formation of a series of original water-colour drawings to illustrate the most interesting of these subjects.

For this purpose the Council were fortunate enough to secure the services of Mr. Joseph Wolf, who may be fairly said to stand alone in intimate knowledge of the habits and forms of Mammals and of Birds. By this gentleman, the series of drawings undertaken in accordance with the foregoing resolution, which now amount to above eighty in number, have been wholly executed.

In 1856, the late Mr. D. W. Mitchell, then Secretary to the Society, having obtained the permission of the Council for that purpose, entered into arrangements with Messrs. Graves & Co. for the publication of a selection of these drawings. In pursuance of these arrangements the first number of Zoological Sketches was issued to the public in 1856, and the succeeding numbers followed in due course, each double part containing eight illustrations and a sheet of temporary letter-press.

Upon the death of the late Mr. Mitchell, in 1859, which occurred shortly after the publication of Parts vii. and viii. of the Zoological Sketches, I gladly undertook, at the request of Messrs. Graves and Co., to assist in the completion of the work. I accordingly selected the subjects for the concluding parts, and wrote the temporary letter-press to accompany them.

I have also prepared the permanent letter-press which is now given with the thirteenth and concluding part of the work. In relation to this, I should mention that though one or two of the articles (such as that relating to the Hippopotamus and the Alpaca) have not undergone any material alterations, the whole of the letter-press has been carefully revised, and where it has not been entirely re-written, all such additions have been made as are rendered necessary by the progress of science since the publication of the original issue.

PHILIP LUTLEY SCLATER.

11, HANOVER SQUARE,

March 14th, 1861.

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* In the first issue of the "Zoological Sketches," and in the Temporary Letter-press,

Plate II. is called STANGER'S MONKEY (*Cercopithecus stangerii*).

XXIV. ,, VIGNE'S WILD SHEEP (*Ovis vignii*).

Plate XLVI. is called THE MANTHURIAN CRANE (*Grus japonensis*).

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The reasons for the alteration of these names will be found detailed in the Permanent Letter-press.

THE CHIMPANZEE.

Troglodytes niger.

PLATE I.

THE efforts made in Europe to preserve the Chimpanzee and other anthropoid Apes in captivity for any length of time, have hitherto proved unavailing. Shut up by itself in a barred den, without companions of its own species, and subjected to the continual changes of climate, which occur in these latitudes, the poor captive soon withers and dies, and is replaced by another, fresh from the warm tropics, certain to undergo a similar fate in its turn. Under these circumstances the Zoological Society have wisely abstained during the last few years from the acquisition of young examples of the Chimpanzee and Ourang Outang, waiting until some more efficient plan for their preservation can be adopted. There is no doubt that adult specimens, if procurable, would be much more likely to succeed well.

The illustration is taken from a drawing of the fine young male specimen of the Chimpanzee, which lived a few months in the Society's Menagerie, in 1852. Previously to this the Society had, at different times, possessed many living examples of this animal. Between 1836 and 1853 the deaths of no less than nine Chimpanzees belonging to the Menagerie are recorded in the Society's Diaries. None of these had lived beyond a few months in this country. But the dissection of their dead bodies has assisted in furnishing materials towards a series of elaborate Memoirs on the Osteology and Anatomy of the Chimpanzees and their allies, which have been contributed by Professor Owen to the Society's Transactions, and have greatly tended to advance our knowledge of this important subject.

The interest until recently centred in the Chimpanzee, as supposed to shew the nearest approach in structure to Man, among the Quadrumana, has been of late years in some degree diminished by the discovery of its gigantic brother the Gorilla (*Troglodytes gorilla*) in the forests of the Gaboon. The Gorilla is now considered by some of the highest authorities to be the most "anthropoid" of the Apes, though this view has not been universally assented to. Dr. Wyman, a well-known American Naturalist, who first, in conjunction with Dr. Savage—its discoverer—described the Gorilla, and gave it its scientific name, considers it less nearly allied to Man than the Chimpanzee, but refers them both to the same genus. The French Naturalists, L. Geoffroy St. Hilaire and Duvernoy, also concur with the American in placing the Gorilla below the Chimpanzee in the scale, and go even further, placing it in a distinct genus. Professor Owen's views on this point, however, are not in accordance with either of these authorities, as will be seen on reference to the full abstract of his Memoir on the Gorilla, printed in the Society's "Proceedings" for 1859, which likewise contains a resumé of the present state of our knowledge of this extraordinary animal.

The late Mr. Broderip drew up some interesting observations on the habits of the Chimpanzee in captivity, from observations of a young male which was living in the Society's Menagerie in 1835; these will be found detailed in the Society's "Proceedings" for that year. In 1839, Lieut. Henry K. Sayers, who brought another young male to England, gave the following account of it at one of the Society's meetings. "Bamboo, the Chimpanzee, now in the Zoological Society's Gardens, was purchased about eight months since, from a Mandingo, at Sierra Leone, who related that he had captured him in the Bullom country, having first shot the mother, on which occasions the young ones never fail to remain by their wounded parents. On becoming mine he was delivered over to a black boy, my servant, and in a few days became so attached to him as to be exceedingly troublesome, screaming and throwing himself into the most violent passion if he attempted to leave him for a moment. He evinced also a most strange affection for clothes, never omitting an opportunity of possessing himself of the first garment he came across whenever he had the means of entering my apartment. This he carried immediately to the Piazza, and invariably seated himself on it with a self-satisfied grunt, nor would he resign it without a hard fight, and on being worsted exhibited every symptom of the greatest anger. Observing this strange fancy, I procured him a piece of cotton cloth, which, much to the amusement of all who saw him, he was never without, carrying it with him wherever he went, nor could any temptation induce him to resign it even for a moment. Totally unacquainted with their mode of living in a wild state, I adopted the following method of feeding him, which has appeared to succeed admirably. In the morning, at eight o'clock, he received a piece of bread about the size of a halfpenny loaf, steeped in water, or milk and water; about two, a couple of bananas or plantains; and before he retired for the night, a banana, orange, or slice of pine apple. The banana appeared to be his favorite fruit; for it he would forsake all other viands, and if not gratified would exhibit the utmost petulance. On one occasion I deemed it necessary to refuse him one, considering that he had already eaten a sufficiency, upon which he threw himself into the most violent passion, and uttering a piercing cry, knocked his head with such violence against the wall as to throw himself on his back, then ascending a chest which was near, wildly threw his arms into the air, and precipitated himself from it. These actions so alarmed me for his safety, that I gave up the contest. On my doing so, he evinced the greatest satisfaction at his victory, uttering, for several minutes, the most expressive grunts and cries. In short, he exhibited on all occasions where his will was opposed, the impatient temper of a spoilt child, but even in the height of passion I never observed any disposition to bite or otherwise ill-treat his keeper or myself."



THE CHIMPANZEE.

TROGLODYTES NIGER.

STANGER'S MONKEY.

Cercopithecus pluto.

PLATE II.

THE genus *Cercopithecus*, established by Erxleben, in 1777, embraces a well-characterized group of Monkeys peculiar to the continent of Africa, and remarkable for their light and vigorous form, lengthened tail, and full and soft fur, the colours of which are often elegantly disposed and contrasted. The species of *Cercopithecus* are numerous, upwards of twenty-five being tolerably well ascertained to exist, whilst there are several others, which have been more or less imperfectly described, resting on mutilated skins, or materials insufficient for comparison.

The Red Monkey or Patas (*Cercopithecus ruber*), the Malbrouck (*C. cynosurus*), the Grivet (*C. griseo-viridis*), the Vervet (*C. delalandii*), the Green Monkey (*C. sabaeus*), and the beautiful Diana Monkey (*C. diana*), are members of the genus which are generally living in the Society's Menagerie, and which are well-known to all students of the Quadrumana. On the other hand the Society have occasionally possessed much rarer animals of this group, and indeed several which have first become known to science by specimens obtained in a living state for its Menagerie. Such was the case with Colonel Sykes' White-throated Monkey (*C. albogularis*), of which two examples (out of the only three known to Naturalists) have lived in the Society's possession; and again with the Pluto or Dr. Stanger's Monkey, which forms the subject of the accompanying plate.

The Pluto Monkey was first described by Dr. Gray, from a specimen brought from Angola, and placed in the Society's Menagerie in 1848. It bears some resemblance to the Diadem Monkey (*C. leucampyx*), and has indeed been stated by M. Temminck, though, we believe, quite erroneously, to be identical with that species. The Pluto Monkey "belongs," says Dr. Gray, in his communication to the Zoological Society on this subject (Proc. Zool. Soc., 1848, p. 50), "to the division of the genus *Cercopithecus* with rounded whiskers formed of annulated hairs, which have no beard, a variegated fur, and black nose and lips, and is easily distinguished from the species of that division by its dark colour and broad frontal band."

The present illustration does not represent this typical specimen (which is now in the British Museum, and has been already figured in the coloured Illustrations to the Society's "Proceedings"), but a second animal, procured by the late Dr. Stanger, at Natal, and presented by him to the Society, in 1851. The latter differed in some particulars from the example described by Dr. Gray, having the frontal band less strongly marked, and the general colour more uniform. The hairs of the tail had become worn, which probably gave it a lighter appearance. These variations led to the name *Cercopithecus stangeri* being applied to it by the late Mr. Mitchell in the Report of the Council of the Society for 1853, and in the temporary letter-press issued with this work. But there is little doubt that the animal in question was really referable to the Pluto, under which name it was entered in the Society's books, and no description of *C. stangeri* appears to have ever been published. Unfortunately Dr. Stanger had no precise information as to the locality from which his specimen had been derived.



THE PLUTO MONKEY.

CERCOPITHECUS PLUTO.

THE LION.

Felis leo.

PLATE III.

LIONS appear to vary considerably both in form and color, according to the regions in which they live, but so far from these variations being permanently distinctive, there seems to be little doubt of the perfect specific identity of the Lions of Africa and Asia. The latter, especially those of Guzerat, were at one time supposed to be always maneless, but a male, imported direct from the Euphrates, and at present living in the Society's Menagerie, far from being maneless, is quite as profusely furnished with that ornament as any of the African specimens, of which a very large number have now been observed in captivity.

The celebrated sportsman, Major Sir W. C. Harris, who was equally well acquainted with the Lion of India and Africa, had no faith in the existence of the "maneless Lion of Guzerat." But it seems difficult to believe that Capt. Walter Smee, who brought the subject before the notice of the Zoological Society in 1833, and contributed an excellent figure and description of this variety to the first volume of the Society's "Transactions," can have been altogether mistaken. "This Lion," says Capt. Smee, "is distinguished from those previously known by the absence of a mane from the sides of the neck and shoulders, the middle line of the back and neck being alone furnished with longer hairs, which are erect like those in the same situation of the Hunting Leopard (*Felis jubata*). The under surface of the neck has long loose silky hairs, and there is a tuft at the ancle of the fore legs. Besides the absence of the extensive mane, the tail is shorter than that of ordinary Lions, and is furnished at its tip with a much larger brush or tuft." Capt. Smee's description was based upon eleven specimens which he killed during a month's residence near Ahmedabad. He states that they are common in this district, inhabiting, during the hot season, the low bushy plains that skirt the Bhardur and Sambermutta rivers, and extending through a range of country about forty miles in length. Dr. A. H. Layard also seems to allude to the occurrence of this Lion in Mesopotamia, as, speaking in his well-known work on Nineveh, of Lions seen on the river Karoon with a long black mane, he states that the inhabitants "make a distinction between them and the common maneless Lion." On the other hand, Sir W. Cornwallis Harris in his "Portraits of the Game and Wild Animals of South Africa," tells us as follows:—

"In point of size and complexion the South African Lion differs in no respect from that found so abundantly in Guzerat, one of the only two provinces of India wherein the species exists, measuring usually between ten and eleven feet in extreme length, and varying in hue betwixt ash-color and tawny dun, but generally possessing a more elaborate and matted mane; which peculiarity is attributable, in a great measure, to the less jungly character of the country that he infests, and to the more advanced age to which, from the comparatively small number of his mortal foes, he is suffered to attain. In India the Lion is often compelled to establish himself in heavy jungles, which comb out a considerable portion of the long loose silky hairs about his head and neck; but this is seldom the case in the arid plains of Africa, where the covert being chiefly restricted to the banks of rivers, or to isolated springs, he rests satisfied with a less impervious shade, and is often disturbed from a clump of rushes barely large enough to conceal his portly figure."

Neither do recent observers in Guzerat and the adjoining territory confirm the present existence of the "Maneless Lion" in those countries. But the fact is that owing to the ceaseless war of extermination waged against him by the British sportsman, the Lion has, we believe, very considerably decreased in numbers in Western India, and is becoming quite a rare animal.

Lions vary in color from a deep red brown to a pale silvery gray, so pale that a rumour once was current at the Cape of the existence of a race of white Lions in the far interior. The deep red variety is rare. The black-maned Lions of Natal are perhaps the most magnificent of all, but extremely fine animals exist in Ashantee on the west coast, and in Barbary on the north. Many specimens of the Nubian race have been received by the Society, but they are almost always deficient in the under mane, which in the Babylonian and Cape varieties runs completely along the under side and flanks, and adds immensely to the grandeur and massive appearance of the animal.

The Lion, from whatever country, bears captivity with resignation, and preserves its health, with ordinary precaution, for many years. Many whelps have been produced in this country, both in the travelling Menageries and in the Society's collection. One of the latest litters afforded an opportunity of making the characteristic study here published.



THE LION.

FELIS LEO.

THE LEOPARD.

Felis leopardus.

PLATE IV.

THE present plate illustrates two fine and well-marked varieties of the Leopard or Panther, for, although various attempts have been made to shew that these names belong to different animals, the matter seems far from being settled, and the best authorities continue to apply them both to the *Felis leopardus*. The Zoological Society's collection always contains several examples of the Leopard. Those here represented were living in the Menagerie in 1851. The front figure is that of the Black Leopard, a *melanoid* variety which is most frequent in the Malay Countries, though instances are known of its having been produced in England, in a state of captivity.

The figure in the back-ground is that of a large variety of the Leopard, which is found in Morocco and Northern Africa generally. There is at the present moment a very fine example of this animal in the Society's Gardens, presented to the Menagerie by Her Majesty the Queen.

The Leopard, like many other of its relations of the genus *Felis*, is rather widely distributed over the warmer portions of the Old World, its place in the New World being occupied by the Jaguars (*Felis onca*), as that of the Lion is by the Puma (*Felis concolor*). From Java and Malacca the Leopard extends throughout British India and the adjoining portions of Southern Asia into Africa, over the whole of which immense continent, except the Northern coast region, it is found in greater or less abundance. In the extreme South of Africa it is a common animal throughout the Cape Colony, being there dignified by the name of "Tiger," and much dreaded by the farmers on account of the ravages it commits amongst their sheep, and during the breeding season, also among their foals and calves. "Nightly may his low half-smothered growl be heard," says Sir W. C. Harris, in his admirable work on the Wild Animals of Southern Africa, "as he prowls round the fold, and in spite of the baying troops of watch-dogs that are maintained for the protection of the flock, he not unfrequently contrives to purloin mutton."

"Viewed in his wild state," continues the same eloquent writer, "few animals can surpass the lurking Leopard in point of beauty; his brilliant orange and white skin, which shines like silk, being richly studded with open rosettes, sometimes of the most intense sable, at others disposed as if a cat had been walking over it with her paws tarred. Nor is he less distinguished for elegance and grace. His every motion easy and flexible in the highest degree, he bounds among the rocks and woods with an agility truly amazing; now stealing along the ground with the silence of a snake, now crouching with his fore paws extended, and his spotted head laid betwixt them, while his chequered tail twitches impatiently, and his pale gooseberry eyes glare mischievously upon his unsuspecting victim. But the nocturnal depredator is not unfrequently outwitted, and being ensnared in a cage constructed of stones and timber, upon the principle of the rat trap, is sentenced without trial by judge or jury to be worried by every dog that the country round can contribute. For, as no Dutchman chooses to hazard an attack upon the intruder, when at large, unless he be backed by some dozen canine coadjutors, it is of course desirable to give these latter a foretaste of the animal's tactics. Accidents in the chase are frequent in those districts which abound most in this species, and during my short sojourn in the colony, I heard of the occurrence of more than one."

The preceding extracts give the observations of the highest authority on the habits of the Leopard. The question as to the real diversity of many races and varieties of this animal has been ably discussed by a well-known and experienced observer in one of the Bengal Sporting Journals, and the following sentences seem to give the gist of his opinion upon this much dilated subject.

"As the Leopard has a very extensive geographical distribution, the question arises, do particular races or varieties characterize certain regions? Or is the same amount of variation observable everywhere that this creature is found? For more than a quarter of a century I have paid attention to this matter, and have seen perhaps as many African as Asiatic specimens; but however individuals may vary, in any country, I do not believe that the common Pardes of India and Africa are to be discriminated; and the same variations which may be remarked in Indian are, I think, equally observable in Malayan specimens. They are generally deeper-colored in hot countries, and paler in cold regions; and the *melanoid* variety seems to belong exclusively to the former, and to be most frequent in the Malay countries."

In opposition to this we may remark that Professor Wagner, the author of the most recent general work on Mammalia, considers the Malayan animal, *Felis variegata*, with its black variety, *Felis melas*, distinct, differing in its longer tail, larger spots, and rather smaller size. We cannot, therefore, consider either this question, or that of the identity of the large Moroccan variety with the common *Felis leopardus*, as yet satisfactorily settled.



THE LEOPARD.

FELIS LEOPARDUS.

THE PAINTED OCELOT.

Felis picta.

PLATE V.

THE small Leopardine Cats of South America included under the general designation of Ocelots, will, when properly understood, be divided into several species. Their diagnosis, is however, extremely difficult, from the great variation which takes place in their individual colouring and size, especially as regards the living specimens which are so frequently seen in captivity.

It occasionally happens however, that they become completely developed under favorable treatment, even in captivity; and a pair of *Felis pardalis*, nearly allied to the rarer species here depicted, of which the male was presented to the Society by His Majesty the King of Portugal, have bred for two consecutive years in the Society's Menagerie.

The present Ocelot, called by Dr. Gray *Felis picta*, is stated to be from Central America. Whether it entirely replaces the true *Felis pardalis* to the north of the Isthmus of Panama, or whether it is really anything more than a variety of the latter species, are questions still to be determined. In the Annals and Magazine of Natural History (vol. x. p. 260) in which it was described, we find no comparison of the supposed new animal, with previously known species, and not even the dimensions given.

The Naturalists of the United States include the Ocelot of Texas and Mexico in their recent publications, under the Linnean name of *Felis pardalis*, stating, however, that it can be only ascertained by the examination of a large number of South American specimens whether it is really entitled to bear that name. The Ocelot of Texas is called there the Tiger-Cat or Leopard-Cat. In the Report on the Mammals met with during the Survey of the Mexican boundary, lately published by the Government of the United States, we find the following interesting notice of this animal by Mr. Schott.

"This beautiful Cat, though quite common through the western wilds, was met with by our party but once, on the lower Rio Bravo. The dogs started it first and "treed it," as the hunters say. One or two pistol bullets, however, drove it down again, to seek a safer place in a dense *nopal* thicket, a common resort of persecuted animals.

"In taking off the skin of this specimen I found its inside all over covered with *Opuntia* prickles, which, naturally, barbed as they are, had worked themselves in with the movements of the skin. The animal, however, did not seem to have suffered by this otherwise dreaded annoyance, for all the prickles lodged themselves horizontally, or in an oblique direction, into the skin, so that the points would not reach the muscles and nerves. I observed subsequently the same circumstance on other animals, which accounts for the readiness with which they take to these bushes unapproachable for men.

"As the Ocelot is but a small robber, his importance, as regards the development of civilization, stands in a strict proportion to the size of the game he preys on. He is, however, eagerly pursued, for the sake of his beautiful fur."



THE PAINTED OCELOT.

FELIS PICTA.

THE EYRA.

Felis eyra.

PLATE VI.

THIS rare and interesting little Cat was discovered by the well-known Spanish Naturalist, Don Felix Azara, in Paraguay. The first recorded example brought to Europe alive afforded the opportunity of securing the portrait here given, which represents an animal of this species that was received by the Zoological Society in 1850. A second specimen was subsequently obtained in the past summer, and is now living in the Society's Menagerie.

In size the Eyra is not much larger than the Polecat, and in form exhibits a remarkable tendency to transition from the true Cats (*Felidae*) towards the Musteline Group of Carnivora, of which the Weazel and Polecat are familiar examples. It is one of the most attractive objects among the smaller species of Cats, in consequence of the extreme grace of its actions and the gentleness of its manners. Its conduct in confinement does not indicate any disposition towards the arboreal life which characterises so many of its congeners in South America, but the contrary. Its habitual attitude of repose is admirably given in the more distinct figure, while its peculiarly low and lengthened form is thoroughly explained by the other. The contour of the head closely resembles that of the Puma (*Felis concolor*).

The Eyra Cat, as it is now pretty satisfactorily ascertained, has a wide range in the New World. From Paraguay it extends throughout Brazil and Guiana, and, crossing the Isthmus of Panama, is found again in the upper parts of Mexico, as far north as Tamaulipas. In Brazil, as Dr. Burmeister informs us, it is more frequent in the inner wooded provinces than in the coast-region. Its existence so far north as the Rio Grande, and the consequent introduction of the species into the Fauna of North America, is due to the researches of Dr. Berlandiere, who has collected long and laboriously in those regions. A skull in Dr. Berlandiere's collection, together with a short description and figure of the animal, enabled Professor Baird to identify it with tolerable certainty.* Dr. Berlandiere's notice of the species, as given by Professor Baird, is as follows:—

“This animal (by some called *Onza*, by others *Apache*) is extremely rare in Mexico, where I have only seen it in the interior States of the East. In the State of Tamaulipas it is found in the shrubbery which grows on the shores of the Rio Grande del Norte. The specimen which I have described is a female, and was given to me when very young. I tamed it, without its losing altogether the habits of its kind, especially when in sight of some prey. It had attained the size of a Cat, but was more elongated and slender. In every movement it exhibited great lightness and activity, of which we had many proofs. This digitigrade was in the habit of purring like a Cat.”

* See “Report on the Mammals of the United States and Mexican Boundary.” By Spencer F. Baird. Washington, 1859.



THE EYRA.

FELIS EYRA.

THE CLOUDED TIGER.

Felis macroelis.

PLATE VII.

THIS very beautiful species was first discovered in Sumatra, by Sir Stamford Raffles, and a short notice of it, under its Malayan name of *Rimau Dyan*, was given in the catalogue of his zoological collection, published in the Linnean Society's Transactions in 1822, (vol. xiii. p. 250). Shortly afterwards, M. Temminck, who had examined several imperfect skins of this animal in the collections of Leiden and Paris, and in that of the East India Company in London, gave a more extended notice of the species in the first volume of his "Monographies de Mammalogie," under the appropriate name of *Felis macroelis*. A living specimen of the new species was brought to England by Sir Stamford Raffles, in the autumn of 1824, and a more perfect description and figure was taken from this individual, and contributed to the "Zoological Journal," by Dr. Horsfield. Sir Stamford Raffles' specimen was placed, on its death, in the Zoological Society's Collection, whence it was subsequently transferred to the National Collection in the British Museum.

The Sumatran specimen is identical in all respects with the subjects of Mr. Wolf's drawing, one of which is still living in the Menagerie. They were obtained in Assam, by an officer in the service of the Hon. East India Company, who shot the mother, and succeeded in inducing his servants to rear the whelps, which were then but a few days old. They have always preserved habits of the utmost gentleness, and exhibit extraordinary attachment to their attendant. The character of the head, the great length and thickness of the tail, combined with a very peculiar coloration, which is excellently rendered in the drawing, distinguish these animals at the first glance from the other Leopards. Their nearest ally is a smaller species from Nepal, formerly also in the Society's collection, which Mr. Hodgson has described under the name of *Felis macroclides*, and which is carefully figured in the "Proceedings of the Zoological Society" for 1853.

In its natural state, according to Sir Stamford Raffles, the Clouded Tiger lives principally on trees, pursuing and feeding on birds, and is said by the natives to be in the habit of sleeping stretched across the fork of a large bough, a practice which our captive specimens often imitate among the branches with which their cage in the Society's Gardens is supplied.

The Clouded Tiger is found in Borneo as well as in Sumatra, according to M. Temminck, but does not occur in Java. On the continent its range extends into Siam, and up the Malayan peninsula as far north as Assam. The *Felis macroclides* of Nepal and Tibet, above mentioned, described as being found on both sides of the snow in lofty sites, is of smaller size, and rather different in its markings. Its claim to be considered a really distinct species, appears rather doubtful, but, on the other hand, the existence of the same animal in Sumatra and amidst the snows of Tibet, is certainly not in accordance with the general laws of geographical distribution.



THE CLOUDED TIGER.

FELIS MACROCELIS.

THE SERVAL.

Felis serval.

PLATE VIII.

THE Serval is an exclusively African species of Cat, extensively distributed in the South, but occurring also on the West Coast, at least as high up as the River Gambia, whence the animals now figured were obtained by the late Mr. Whitfield. These appear to be absolutely identical with the Servals of the South, although a second species is believed to inhabit the intermediate country, and has been described provisionally from an imperfect skin, by Mr. Ogilby, in the "Proceedings" of the Zoological Society for 1839, under the name of *Felis servalina*. Flat skins of this latter animal have also been lately brought from Angola, by Mr. Monteiro, as recorded in the list of his collection, given in the Society's "Proceedings" for 1860 (p. 246).

The Serval was a name originally applied to an unknown Indian animal, but transferred by Buffon to the present species. It has likewise been called *Felis galeopardus*, by Desmarest, and is figured in Lesson's "Illustrations de Zoologie," under the name of *Felis senegalensis*. Its large elongated ears and short ringed tail render it rather strikingly different from the rest of its congeners, and almost as worthy of subgeneric distinction as the Caracal and others, which have obtained that rank in some classifications.

The Serval is well known to the Colonists of South Africa as the Bosch-Kat or Tyger-bosch-Kat, and is said to be still abundant in some of the more retired localities. The left-hand figure in the accompanying plate admirably expresses its attitude of surprise, when its attention is suddenly awakened by some unfamiliar object. It is rather shy and somewhat spiteful in captivity, and not very commonly met with in collections of living animals.



THE SERVAL.

FELIS SERVAL.

THE EGYPTIAN CAT.

Felis chaus.

PLATE IX.

THE Marsh-Cat or Chaus seems, like many of its congeners, to have rather a wide geographical range. It was first described by Gldensted in the latter part of the past century, from examples obtained in the marshes of the Volga, near the Caspian. It is said to be common in Persia, and extends from Egypt up the valley of the Nile into Nubia. It is also found all over India, frequenting bushy and moist situations, and resembling other Wild Cats in its stealthy and nocturnal habits.

The specimen here represented, which was exhibited in the Zoological Society's Gardens in 1852, was from Egypt. A former animal of the same species, obtained from India, lived about six months in the Menagerie in 1844.

The Chaus is of much interest as connected with the question of the origin of our domestic Cat, which, as it is now generally conceded by the Naturalists who have paid most attention to that very difficult subject—the origin of our domestic races of animals—has been derived from more than one feral species. The Fettered Cat of Nubia (*Felis maniculata*), for the re-discovery of which we are indebted to the researches of Dr. Rppell, is generally supposed to have had the largest share in the formation of our domestic animal. This, however, it is usually allowed, has been more or less crossed with the common Wild Cat of Europe (*Felis catus*), particularly in countries where the latter animal is abundant in a state of nature. In India the Chaus seems to have frequently bred with the domesticated animal, and to have had some share in the production of at least one of the races of the Indian House Cat. We cannot do better than repeat what Mr. Blyth—than whom no one can be more worthy of attention in a case of this sort—says upon this point. Speaking (Journ. As. Soc. Beng. xxv. p. 442, 1856) of the two aboriginal types which are indicated by the domestic Cats of Bengal, he describes them as follows:—

“One is the streaked or spotted type, the colourings and markings of which are not much unlike those of the European Wild Cat (*Felis catus*), only more distinct, and with the transverse streaks more broken into spots, especially towards the hinder part of the body. The fur, however, is short, and the tail slender and of apparently uniform thickness to the end, showing a series of rings and a black tip: the ears are slightly rufescent externally, but infuscated, passing to black at the tip, where there is a distinct small pencil-tuft of black hairs; the paws are deep sooty black underneath. I lately saw, at Allahabad, an exact counterpart of this alleged wild race in a domestic Grimalkin; but, in general, the domestic Cats of this type—about Calcutta at least—are greyer, with the spots smaller and more numerous.

“The other type much resembles *F. chaus* in colouring, but does not at all approximate to that animal in its proportions. It is much smaller than the Chaus, with proportionally shorter limbs, smaller ears, and much longer tail, which last distinctly tapers at the extremity. Consequently, it exhibits no tendency to the Lynx-like form and character, so conspicuously manifest in the Chaus. The body is uniformly grizzled ‘eat-grey,’ more or less rusty or fulvescent, without a trace of spot or stripe, such as may generally be discerned faintly in the Chaus; but the bands on the limbs are much more distinct than in that animal, those of the tail equally so; and there are the usual marks on the forehead and cheeks (much confused albeit on the former), and a dark band across the chest: lower parts more or less whitish or tinged with fulvous, and marked with blackish or brownish black spots: ears dull rufous behind, with a slight blackish tip and no pencil-tuft of hairs: the paws more or less sooty underneath. Domestic cats of this type abound in Bengal, if not generally over India; but such a coloration is utterly unknown among those of Europe: and the proper tabby markings (pale streaks on a black ground, peculiarly and symmetrically disposed), so very common in English cats, are never seen in those of India! The tabby may be a modification (and a very remarkable one) of the markings of the wild *F. catus* of Europe, a result of domestication; but most assuredly the Chaus-coloured cats of India would seem to indicate an aboriginally wild stock of that colour, no doubt inhabiting the country somewhere. Yet if a truly and aboriginally wild specimen were to turn up, it would merely be regarded as a stray member of the domestic race, and so would end all enquiry.

“The only guide to a probably correct result would be, if it were ascertained, that such an animal inhabits a vast range of country, away from human haunts, without exhibiting the variation of colour everywhere observable in the domestic races; unless in neighbourhoods where it might interbreed with the latter, which would pass for nothing: though to such neighbourhoods it would doubtless be attracted, just as the Chaus is! The question then remains—Do two such feline types exist, or either of them, in an aboriginally wild state, in any part of India, as have just been described, and both of which are said to be found wild in the Punjab Salt Range? The difficulty of tracing the origin of many of our domestic animals is well known. I have no doubt that several species have contributed to produce the tame cat, one or another predominating in different countries; as *F. catus* in Europe; *F. maniculata* perhaps, in N.E. Africa, and besides the two presumed types above mentioned, *F. chaus*, *F. ornata*, and *F. rubiginosa* have been known to interbreed with domestic cats in this country: probably also *F. manul*, in Middle Asia, *F. planiceps* in the Malay countries, and *F. cafra* in S. Africa! Indeed, I find that examples of the hybrid from *F. cafra* are in the British Museum.”



THE EGYPTIAN CAT.

FELIS CHAUS.

THE CARACAL.

Felis Caracal.

PLATES X. & XI.

THE Caracal, although closely allied to the Lynxes, presents a well-marked form in the family of *Felidae*. Dr. Gray has proposed to use, as its generic appellation, the old specific name, and has thus been obliged to replace it by a new one. The species accordingly appears in his catalogue of the Mammalia in the British Museum as *Caracal melanotis*, but the separation has not been countenanced by other writers.

The geographical distribution of this Cat is extremely wide; it is found throughout Africa, and extends over Western Asia into India, though presenting several well-marked varieties in size and coloring. The ordinary tone of the *pelage* is more or less intensely rufous, and is well represented in Plate x., and in the figures in the back-ground of Plate xi., which illustrate the usual type of coloration of this species. The principal figure in Plate xi. is that of a very fine Nubian Caracal, which was received by the Society from the Hon. C. A. Murray, when acting as Her Majesty's Agent and Consul-General in Egypt. This animal, as will be observed, was stronger in form and more grey in coloring, and was further remarkable for its short ears. It cannot, however, be considered to have been more than a variety of the *Felis caracal*.

The Caracal is generally supposed to have been the true Lynx of Aristotle and the ancients, concerning which extraordinary fables were narrated, but this appellation was transferred by Linnæus and his successors to the animal now commonly known by that name, and the present species, was called *Felis caracal*, from its Turkish name of *Karakalach* or Black-ears.

The Caracal, although excessively irritable in the confinement of a menagerie, is said to exhibit, under favorable circumstances, as considerable an aptitude for training as the Cheetah. Temminck states in his monograph of the genus *Felis*, that the Caracal habitually hunts its prey in packs, like the Wild Dogs and the Lyeaon; and this statement is borne out by a communication made to the late D. W. Mitchell, Esq., that the Guicowar of Baroda, in Western India, had some years since, a pack of forty trained Caracals, who were worked like hounds in pursuit of hares and other game, in his territory.



THE CARACAL.

FELIS CARACAL.



THE RED CARACAL.

FELIS CARACAL

THE CANADIAN LYNX.

Lynx canadensis.

PLATE XII.

THE Canadian Lynx belongs to a small but well-marked section of the Feline family, the genus *Lynx* of Naturalists, which differs from the typical Cats in the absence of the small anterior præmolar tooth, and other slighter peculiarities. We have two species of this form in Europe—*Lynx cervaria*, the Loup-cervier, in the North, and *L. pardina* in Piedmont and Spain; while in the United States of America there are three others found besides the present species.

The Canadian Lynx has an extensive range in North America, and according to Mr. Smith, Secretary to the Hudson's Bay Company, to whose exertions the Zoological Society are indebted for many interesting additions to their menagerie, is found all along the northern shore of the gulf of St. Lawrence, in the St. Maurice, Lac des Sables, Lake of Two Mountains, Ottawa River, and Lake Huron Districts; throughout the Regions of Lake Superior, and all across the Wooded Districts bordering the plains. The other three Lynxes of the United States, namely, the American Lynx (*Lynx rufa*), the Texan Lynx (*Lynx maculata*) and the Red Lynx (*Lynx fasciata*) are more Southern in locality, and of smaller size. They are also distinguished in form by their having more naked soles to their feet, the pads of the feet in the Canadian Lynx being overgrown with hair, so as to be completely concealed in the winter.

When game and the smaller mammalia on which it feeds are abundant, the Canadian Lynx appears in great numbers in the territory of the Hudson's Bay Company. In six years (1845 to 1850 inclusive) the Company imported 173,523 skins; the largest number obtained in any one year being 47,063, in 1848. The activity of the hunters during this period appears to have thinned down the Lynx considerably; and, as a consequence, the supply gradually decreased, until in 1853 it only amounted to 4,850 skins.

The Society have frequently possessed specimens of the Canadian Lynx, as also of the two European species, and of the Bay Lynx or American Lynx of the United States. In captivity all Lynxes are very shy and distrustful, seldom moving about except at night, and receiving the visitor, if he approaches at all near the bars of their cages, with angry spittings and scratchings. They do not seem to bear confinement easily, seldom having lived for long periods in the Society's Gardens. Of five examples of the Lynx of Northern Europe, which have been in our Menagerie, none lived many days over the first year; and of three of the Canadian Lynx, which have been exhibited at various times, the longest lived barely passed three years in captivity.



THE CANADIAN LYNX.

FELIS CANADENSIS.

THE CHEETAH.

Felis jubata.

PLATE XIII.

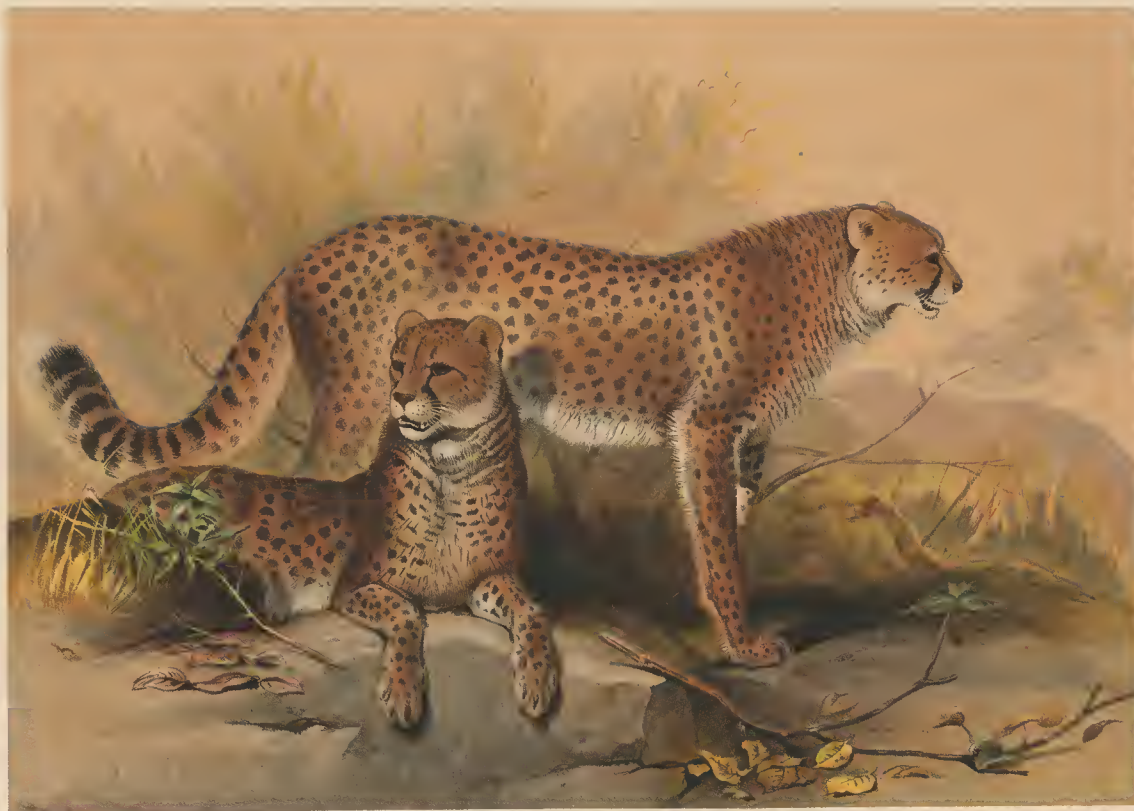
THE Cheetah or Hunting Leopard, as it is often called, like several others of the Cats which have already been noticed, is found in Africa as well as in Southern Asia. At any rate the Cheetahs of these two countries have not yet been accurately distinguished, although individuals living in captivity in Europe appear to vary considerably in size and coloration.

In the Cape Colony the Cheetah is not so common as the Leopard, and inhabits more open country. "Both of these species," we are told by Sir W. Cornwallis Harris, "are the deadly enemies of the Pig-faced Baboon (*Cynocephalus porcarius*), large colonies of which people the rugged regions of Southern Africa." The only Hunting Pard met with during his expedition was at the foot of the Cashan mountains, but the animal, he tells us, although not very abundant, is found throughout the Amazooloo country.

In India and Persia this animal is often trained for hunting Antelopes and Gazelles, being noted for its comparative gentleness and great docility when in a state of semi-domesticity. It is brought into the field covered in a cart, and only let out when the game is within view. It then steals forwards after the usual manner of the cat-tribe, until it arrives sufficiently near to execute the deadly spring with which it seizes its victim. On the hunter's coming up, the Cheetah is enticed off by the offer of small pieces of meat, and again placed in the cart until more game is in sight.

In the first volume of the Society's "Transactions," Professor Owen has given a detailed account of the anatomy of the Cheetah, from a specimen which died in the Menagerie.

The Cheetah requires much more care and protection, when in captivity in this country, than any other of the larger *Felidae*. The open dens in which the health of Lions and Tigers may be preserved with tolerable facility, are not suited to the more delicate frame of the Hunting Pards, and a roomy compartment, well warmed and ventilated, has been found to be quite essential to the welfare of this animal. With these additional comforts, however, the examples of the Cheetah in the Society's Menagerie have not generally been long-lived, three or four years having been usually the longest period of their existence in our Gardens.



THE CHEETAH.

FELIS JUBATA.

THE BASSARIS.

Bassaris astuta.

PLATE XIV.

ONLY one example of this scarce little animal, the *Bassaris* of Mexico, has, it is believed, ever been brought alive to Europe. This individual was exhibited in the Society's Gardens in 1853, and was the subject of Mr. Wolf's portrait, from which the present figure is taken.

The *Bassaris* was first made known to science by the German Naturalist Wagler, who described it in a communication upon new Mexican animals, in the Scientific Journal called "The Isis," under the name *Bassaris astuta* (Isis, 1831, p. 512). It has been, however, shown by Professor Lichtenstein, that the *Bassaris* was already known to Hernandez, who gave an account of it as long ago as 1651, in his work upon the natural productions of New Spain, as "The Cacomixl,"—its native Mexican appellation.

The genus *Bassaris* is generally referred to the family of *Viverridæ* or Civet-cats, and is singular as being the only form of that group yet discovered in the New World. M. M. Eydoux and Souleyet, who have entered into minute details concerning the osteology and anatomy of this animal in the "Zoology" of the Voyage of the French Discovery Ship, "La Bonite," state that its internal structure indicates an animal intimately allied to *Viverra* (the true Civet-cat), but, at the same time, attached to the *Mustelidæ* in some other points. Its dentary system is that of *Viverra*.

"The *Bassaris*," observes Mr. Charlesworth, in the course of some observations made before the Zoological Society in 1841, upon exhibiting a collection of Mammals and Birds obtained on the table-land of Mexico, "is known in Mexico by the name 'Cacomistle;' it is abundant in the city itself, and indeed, as I believe, is not to be met with at a distance from the abodes of man. Its habits are nocturnal, and it selects for its dwelling outhouses or uninhabited buildings, whence it sallies forth at night, and commits great ravages in hen-roosts and pigeon-houses. On this account every attempt is made by the Mexicans to exterminate it. The number of young which the *Bassaris* produces does not exceed three or four at a birth" (Proc. Zool. Soc., 1841, p. 60).

Similar accounts of the *Bassaris* are given by the Naturalists attached to the expedition sent out by the government of the United States for the survey of the Mexican Boundary. Mr. J. H. Clark, who procured specimens of it on the Rio San Pedro, in Texas, says as follows (Report of the Survey, vol. ii. p. 17).

"This 'Cat-squirrel,' as it is called by the Texans, lives amongst rocks and trees. Though not a rare animal, its nocturnal habits render it inconspicuous, and the procurement of a specimen consequently an unfrequent occurrence. But a single one was seen, and that a female, in the crevice of a rock, with four or five young adhering to the paps. To detach these required considerable force; previous to that time they showed no signs of discomfort, although the mother had been dead several hours. It is said to be a constant and common occupant of Mexican outhouses and deserted ranchos. The specimen obtained, when first seen, was asleep; it fought furiously, with claws and teeth, in defence of self and home, and displayed no disposition whatever to run off. It is easily tamed and even domesticated, and makes a mild and playful pet."

With reference to the general appearance of the *Bassaris*, Professor Baird's remarks, in the same work, will be read with interest:—

"The species of the genus *Bassaris* look much like a cross between the fox and raccoon, having the cunning look and much of the form of the one, with the ringed tail of the other. The body is more slender than in the foxes, but stouter than in the common weasels; in fact, having much the proportions of the Mink, *Putorius vison*. The hair is nearly as long as in the foxes, moderately soft and furry, with longer hairs interspersed. The ears are well developed and erect, pointed and naked on the outer side, but coated on the inner with short hairs. Their posterior edge is split, as in other carnivora. The head is sharply pointed; the naked muzzle quite large; the whiskers very bristly and long. The eyes are rather large. The tail is about as long as the body, quite bushy, though depressed and ringed alternately with black and white. The feet are all five-toed; their under surfaces hairy, except on the pads and balls of the toes, which are naked, and seem to possess a high degree of tactile sensibility. The claws are short and partially retractile."



THE BASSARIS.

BASSARIS ASTUTA.

THE PATAGONIAN SKUNK.

Mephitis humboldtii.

PLATE XV.

THE Skunks are a group of carnivorous animals peculiar to the New World, noted for their extraordinary powers of emitting a most offensive odour. This they do, when attacked, by way of defence, and a most effectual mode of protection it proves to be, for the aggressor on the little animal is generally glad to make a very hasty retreat out of the region of "foul smell" with which it surrounds itself. The best known member of this genus is the common American Skunk (*Mephitis mephitis*), which is abundant throughout the Northern Middle and Central States of the American Union, and extends into Canada. It is nocturnal in its habits, and, like its near allies, the Weasels and Pole-cats, is addicted to attacking hen-roosts, where it commits great havoc. The little animal, however, is seldom molested, for on the near approach of an enemy it ejects a liquid "so intolerably offensive that neither man nor beast can withstand it." The odour of it pervades the whole atmosphere for some distance round, and is said to continue for many days, where it has been once diffused. This peculiar fluid, which is secreted by special glands formed for the purpose, and emptying into the rectum, is projected forth by the contraction of a strong muscular membrane to a considerable distance, and seldom fails to strike the intruder.

In the Southern States of the American Union, and in Mexico, there occur several other species of Skunk, the habits and manners of which are believed not to differ from those of the better known animal. In South America, also, a group of Skunks is found, which differs slightly in the dentition and in the form of the muzzle from the more Northern *Mephitis*, and has received from the late Professor Liechtenstein, of Berlin (who contributed an elaborate Memoir on this subject to the "Transactions" of the Royal Prussian Academy, in 1832), the subgeneric name *Thiosmus*.

It is to this latter division that the subject of our present Plate belongs. The *Patagonian Skunk* was first described by Dr. Gray, in 1837, from examples procured in the Straits of Magellan by Captain King, and deposited in the British Museum. In 1837, a single living specimen of this animal was obtained by the Zoological Society, and lived for some months in the Menagerie, where it afforded the opportunity for the accompanying portrait being taken.



THE PATAGONIAN SKUNK.

MEPHITIS HUMBOLDTII.

THE GREY FOX.

Canis azaræ.

PLATE XVI.

THE Dogs, Jaekals, Foxes, and their allies, forming the natural family *Canidae* of naturalists, are found in nearly every part of the world; Australia, where the Dingo or Native Dog is generally supposed to have been introduced, and Oceania generally, being the most noticeable exceptions.

The Zoological Society possesses a tolerably good series of living specimens illustrative of this group of animals, which are placed by themselves in some cages erected near the southern entrance to the Gardens. The Indian Wolf (*Canis pallipes*), the Abyssinian Wolf (*Canis simensis*), and the Black-backed Jaekal (*Canis mesomelas*), are some of the most noticeable representatives of the family from the Old World; the Red Fox (*C. fulvus*) and the Silver Fox (*C. argentatus*) are from the northern, and the Grey or Azara's Fox from the southern regions of the New World. Of all these species the Society's Menagerie contains fine living examples. The greater part of these are hardy in the extreme, and bear confinement well, living for many years, and frequently reproducing in captivity.

The first example of the South American species recorded in the Society's books as living in their Menagerie, was purchased in 1847, and died about three years afterwards. It was, however, subsequently replaced by other individuals, from one of which Mr. Wolf's figure was taken in the year 1852.

The Grey Fox was discovered by the learned Naturalist and explorer Don Felix d'Azara, and described in his works on the Natural History of Paraguay, under the name *Agourachay*. It has since been recognized by Prince Maximilian zu Wied, Lund, Burmeister, and other explorers, as extending to Southern Brazil, haunting the wooded valleys of the mountainous districts, and resembling in its wary and predatory habits the better-known members of the family.

Specimens of this animal obtained during the expedition of H.M.S. "The Beagle," are accurately described by Mr. Waterhouse in the volume of the "Zoology" of the voyage devoted to the Mammals. In the same work is the following notice of the habits of this Fox in a state of nature by Mr. Darwin.

"This animal is common in La Plata, Chile, and the whole of Patagonia, even to the shores of the Strait of Magellan; and a fox which lives on the small islands not far from Cape Horn, probably belongs to the same species. It generally frequents desert places. I saw many of them in the valley of the Despoblado, a branch of that of Copiapó, where there is no fresh water, and where, with the exception of some small rodents (the constant inhabitants of sterile regions), scarcely any other animal could exist.

"I saw also very many of these foxes wandering about by day (although Azara says they are nocturnal in Paraguay) on the plains of Santa Cruz, where various kinds of mice are abundant, and likewise around the Sierra Ventana. In the course of one day's ride in this latter neighbourhood (not far from Bahia Blanca, lat. 39° S.) I should think I saw between thirty and forty. They generally were wandering at no great distance from their burrows; but, as they are not very swift animals, our dogs caught two. In Chile these foxes are very destructive to the vineyards, from the quantity of grapes they consume; so that boys are generally kept in the vintage season with bells and other means to frighten them away. Azara states, that in Paraguay they likewise eat fruit and sugar-cane. By the same authority it is said, that the Agourachay, when taken young, is easily domesticated."



AZARA'S FOX.

CANIS AZARÆ.

THE SYRIAN BEAR.

Ursus syriacus.

PLATE XVII.

THE Bears are a well-known group of animals belonging to the plantigrade section of the Carnivora, in which the whole sole of the foot is applied to the ground in walking. They are all large in size and heavy in structure, and though endowed with great strength and powers of resistance, are not usually formidable to mankind in their wild state, unless previously attacked.

The species of this group are not very numerous. They are found principally in the northern portion of both hemispheres, not descending into Africa south of the Atlas range, and one solitary species only being found southwards of the Isthmus of Panama in the Andes of Peru. The Society's Menagerie at present contains examples of the Polar Bear (*Thalassarcos maritimus*), of the European and American Bears (*Ursus arctos* and *U. americanus*), of the Indian Sun-Bear (*Helarctos tibetanus*), and of the Sloth-Bear (*Prochilus labiatus*) remarkable for its protrusible lips. This series affords examples of all the sections into which the Bears have been usually divided by Naturalists. The celebrated Grizzly Bear, of North America, and the Isabelline Bear, of India, have also been formerly in the Society's Gardens, but are at present desiderata to the collection.

The Syrian Bear, which was first described by Messrs. Hemprich and Ehrenberg, in their work, entitled "Symbolæ Physiæ," relating to the Natural History of Syria and Arabia, is a scarce and little-known animal, closely allied to the Common Bear of Europe, and perhaps only a variety of that species, differing in its pale colouring. It inhabits the mountainous parts of Syria and adjoining regions of Western Asia. It is of some interest as being without doubt the animal referred to as the Bear in the Holy Scriptures, particularly in the Second Book of Kings [chap. ii. verse 24].

The Society have lately possessed two fine specimens of Bears, both apparently referable to this species or variety, whichever it may be. One of these was presented in August, 1851, by Mr. Alderman Fumis, having been brought in one of his vessels from Bussorah in the Persian Gulf. This was the original of Mr. Wolf's figure, having lived in the Society's possession until its death, when it was purchased by the Trustees of the British Museum, and placed in the national collection. A second example of the Syrian Bear, deposited in the Gardens by the late Sir H. Munro, Bart., F.Z.S., was purchased by the Society of his executors after his death in 1856, and is still living in the Menagerie.



THE SYRIAN BEAR.

URSUS SYRIACUS.

THE WALRUS.

Trichecus rosmarus.

PLATE XVIII.

IN the year 1853, Captain Henry, of Peterhead, commanded a vessel which was engaged in the Seal-Fisheries on the coasts of Spitzbergen and in the neighbouring Arctic seas. Towards the latter part of the voyage, the crew succeeded in capturing a young Walrus, and contrived to keep it alive for nearly nine weeks on very uncongenial food. The animal gradually declined in condition as might have been expected, and when at last it reached London, was evidently beyond recovery. Captain Henry was induced, however, to entrust it to the custody of the Zoological Society, and it lived at the Gardens until the third day after its arrival.

The specimen thus obtained, although in so reduced a state that it could not be trusted in water, afforded us good opportunities for observing the peculiar method of progression of the Walrus on land. Its actions under these circumstances differ essentially from those of the Seals (*Phocidæ*), a group with which the attitude usually given to the Walrus in the stuffed specimens set up in our Museums, has popularly caused it to be associated. Instead of moving by a series of bounds or undulations, dragging its fins after it, the Walrus walks on all its extremities, the posterior members being inclined forwards, and the anterior backwards, as Mr. Wolf has faithfully recorded in his study.

Living specimens of this animal have been but seldom seen in captivity, and it is believed that there is only one instance on record of a Walrus having ever been brought to England previously to this.

In the Society's "Proceedings" for 1853 will be found a paper by Dr. J. E. Gray, containing descriptions and figures illustrative of the curious attitudes and shapes assigned to the Walrus or Morse by the older authors, many of whom entertained the most exaggerated ideas as to its form and natural position.*

The home of the Walrus is the region of icy seas surrounding the Arctic Pole. It occurs both in the North-Pacific or Sea of Kamtschatka, on the coasts of Asia and America, and in the Northern Atlantic, on the shores of Siberia, Greenland, and Hudson's Bay, whence it is occasionally driven southwards to Iceland, and even to the shores of Great Britain. The hard and pure white ivory obtained from its tusks, and the oil supplied by its body, have caused it to be much sought after, and a great diminution in its numbers has taken place in localities readily accessible, so that it is now said to be a scarce animal in many parts of the Northern Atlantic, where it was formerly extremely abundant. Though allied to the carnivorous Seals, the Walrus is strictly a vegetarian; its food, according to the most trustworthy authorities, consisting entirely of sea-weeds, and in particular of the *Fucus digitatus*, which is very abundant in the Arctic Seas.

* See "On the Attitudes and Figures of the Morse." By Dr. J. E. Gray. Proc. Zool. Soc. 1853, p. 112.



THE WALRUS.

TRICHECUS ROSMARUS.

THE WAPITI DEER.

Cervus canadensis.

PLATE XIX.

THE Wapiti belongs to the group of true Deer of the genus *Cervus* as restricted by recent authors. These animals, of which our Red Deer (*Cervus elaphus*) is a familiar example, are only met with in the more northern parts of the Old and New World, their places in Southern Asia being taken by the Rusa Deer, and in the rest of America by the Broekets and other allied forms.

The Wapiti, or American Elk, as it is also called, though the latter term is apt to lead to confusion between it and the true Elk (*Alces*), a very different animal, is the only species of this limited group found in the New World, and is the largest and finest of the series. It exceeds in stature even the Red Deer of Europe, and its horns attain to greater size, pairs of the antlers shed in the Menagerie having been found to weigh as much as thirty-two pounds, notwithstanding all the disadvantages of confinement and artificial food.

The Wapiti, as we are informed by Professor Baird, "was once extensively distributed throughout the present limits of the United States. At the present time, however, in the eastern parts, it is only found in a few counties of Pennsylvania, where, indeed, their numbers are decreasing day by day. A few are known to exist in the Alleghanies of Western Virginia. We next find them in the southern part of Michigan; but it is only as we proceed further west that they present themselves in numbers. In Minnesota they are found in large herds, and in still larger on the Upper Missouri, Yellowstone, and other streams. Of the vast numbers in these regions, some idea may be formed from the piles of shed horns, which the Indians are in the habit of heaping up in the prairies. One of these, in Elk-Horn prairie, about eighty miles above Fort Union, was for many years a conspicuous land-mark to the traveller, showing like a white monument many miles off. When torn down in the summer of 1850, it was about fifteen feet high, and twenty-five in circumference. Others, still larger, are found on the Upper Yellowstone."

"The northern range of the Elk is given by Sir John Richardson, as the 56th or 57th parallel, and in high latitudes its eastern limit is found in a line drawn from the south end of Lake Winipeg to the Saskatchewan, and thence to Elk River. West of this line it extends to the Pacific, and south to Texas, New Mexico, and California."

The Wapiti was, we believe, first bred in captivity at Knowsley, by the late Earl of Derby. Of late years the females of this Deer in the Zoological Society's Menagerie have bred regularly every season, and the produce has been parted with to the late Lord Hastings, Lord Powercourt, and other noblemen and gentlemen, who are attempting, with every prospect of success, to establish this noble animal in the parks of this country.

The Society have also two other species of the true Deer equally adapted for similar experiments, both breeding readily in captivity, namely, the Barbary Deer (*Cervus barbarus*), of Tunis and Algeria, and the Persian Deer (*Cervus wallichii*), of Circassia. The former species is already numerous in the park of Viscount Hill, to whom the Society are indebted for the examples of this Deer now in the Menagerie.



THE WAPITI DEER.

CERVUS CANADENSIS.

THE WHITE-TAILED DEER.

Cervus leucurus.

PLATE XX.

THE American Deer without brow-antlers have been separated by Dr. Gray into a group to which he gives the name of *Cariacus*. They are perhaps seven or eight in number, and are all capable of living in an English Park. They are extremely graceful, beautiful in colour, and would amply repay the trouble and expense of establishing them.

The Common Virginian Deer of the United States is the best known species of this form. Closely allied to it is the present White-Tailed or Long-Tailed Deer of the Western side of the Rocky Mountains. A male example of this animal lived for several years in the Menagerie of the late Lord Derby, at Knowsley. Shortly before the dissolution of his Lordship's magnificent collection in 1851, this animal was transferred to the Zoological Society's establishment, and afforded Mr. Wolf the opportunity of securing the accompanying study of this beautiful species.

The White-Tailed Deer was first described by Mr. Douglas, in the Zoological Journal for 1829, where he gives the following interesting notice of its range and habits:—

"This species is the most common Deer in the districts adjoining the River Columbia, more especially in the fertile prairies of the Cowalidske and Multnomah River, within one hundred miles of the Western Ocean. They are also occasionally met with near the base of the Rocky Mountains, on the west side of that ridge. Their favourite haunts are the coppices composed of *Corylus*, *Rubus*, *Rosa*, and *Amelanchier*, on the declivities of the low hills or dry undulating grounds. Their gait is two ambling steps and a bound, the bound exceeding double the distance of the steps, which mode they do not depart from even when closely pursued. In running the tail is erect, wagging from side to side, and from its unusual length is the most remarkable feature about the animal. The voice of the male calling the female is like the sound produced by blowing in the muzzle of a gun, or in a hollow cane. The voice of the female calling the young is *mæ mæ*, pronounced shortly. This is well imitated by the native tribes, with a stem of *Heracleum lanatum*, cut at a joint, leaving six inches of a tube. With this, aided by a head and horns of a full-grown buck, which the hunter carries with him as a decoy, and which he moves backwards and forwards among the long grass, alternately feigning the voice with the tube, the unsuspecting animal is attracted within a few yards in the hope of finding its partner, when instantly up springs the hunter and plants an arrow in his object. They are tenacious of life, and often escape although both shoulders be broken. The flesh is excellent when in good order, remarkably tender, and well flavoured."



THE WHITE-TAILED DEER.

CERVUS LEUCURUS.

THE ELAND.

Oreos canna.

PLATE XXI.

Of all the Antelopes, which are not less than eighty in number, there is none more imposing from its size, or more interesting in an economical point of view, than the Eland, which breeds readily in confinement, and has been proved by actual experiment to be perfectly capable of enduring all the vicissitudes of the English climate, without more protection than such as is usually bestowed upon valuable cattle.

Elands bred by the Society are now established by the Viscount Hill, in Hawkstone Park, in Shropshire, and by the Marquis of Breadalbane, at Taymouth. Future produce is already applied for in advance by other proprietors, and there is every probability that in a few years hence this noble animal will become a permanent inhabitant of many other parks in the United Kingdom.

Elands were first imported into England by the late Earl of Derby, in the year 1840, but an accidental circumstance prevented that herd from multiplying to any extent. An old female born at Knowsley in 1846, and two males and two females imported in 1850, were bequeathed to the Society, by the late Lord Derby, who had been its President for upwards of twenty years, as a memorial of the interest which he had always taken in its progress, and of his approval of the successful impulse which had at that time been given to its operations. This herd of five individuals was the origin of the Society's present stock, the following table shewing the increase that has taken place from them under the Society's care:—

Individuals.	Sex.	Date of Birth.	Place of Birth.	Parents.
A.	♂	January, 1850	Imported.	
B.	♂	" "	"	
C.	♀	" "	"	
D.	♀	" "	"	
E.	♀	April 7th, 1846.....	Knowsley.	
F.	♀	June 29th, 1853	Society's Gardens.	By A out of C.
G.	♂	July 4th, 1853	" "	By A out of D.
H.	♀	January 10th, 1854	" "	By A out of E.
I.	♀	July 8th, 1854	" "	By B out of C.
J.	♀	" "	" "	By B out of D.
K.	♀	March 3rd, 1855	" "	By B out of E.
L.	♀	May 13th, 1855	" "	By G out of C.
M.	♀	June 8th, 1855	" "	By G out of F.
N.	♂	September 27th, 1855	" "	By G out of D.
O.	♀	March 1st, 1856	" "	By G out of C.
P.	♂	April 10th, 1856.....	" "	By G out of F.
Q.	♀	May 21st, 1856.....	" "	By G out of E.
R.	♂	December 4th, 1856	" "	By G out of H.
S.	♂	July 18th, 1857	" "	By A out of E.
T.	♀	May 22nd, 1858	" "	By A out of C.
U.	♀	August 10th, 1858	" "	By A out of E.
V.	♀	August 30th, 1859	" "	By A out of C.
W.	♀	September 1st, 1860.....	" "	By A out of C.

The present stock of the Society consists of a male bred by Lord Hill, at Hawkstone, from animals received from the Society, of an imported female presented to the Society by Sir George Grey, Governor of the Cape Colony, and of the four females (C, U, V, & W,) the latter three born in the Gardens.

Lord Hill's herd consists of about seven females and three males, being the produce of three individuals received by him from the Society, and the Marquis of Breadalbane has likewise a herd of nearly equal extent, originating in the same source.

In its native country—the interior of the Cape Colony and other neighbouring parts of Southern Africa—the Eland or Impoofoo, as it is also called, is celebrated above all its numerous relatives of the same family, for the excellence of its flesh; and is consequently the most prized of Antelopes by the sportsman, who trusts to his rifle to provide himself with his dinner. We need not wonder therefore at the enthusiasm with which the hungry travellers speak on this subject. "Eland meat," says Sir Cornwallis Harris, "both in grain and colour resembles beef, but is far better tasted and more delicate, possessing a pure game flavour, and exhibiting the most tempting-looking layer of fat and lean—the surprising quantity of the former ingredient with which it is interlarded exceeding that of any other game quadruped with which I am acquainted. The venison fairly melts in the mouth, and, as for the brisket, that is absolutely a cut for a monarch!"

We cannot do better than repeat what Sir Cornwallis Harris also tells us about the habits of this animal, as observed in a state of nature.

[TURN OVER.]

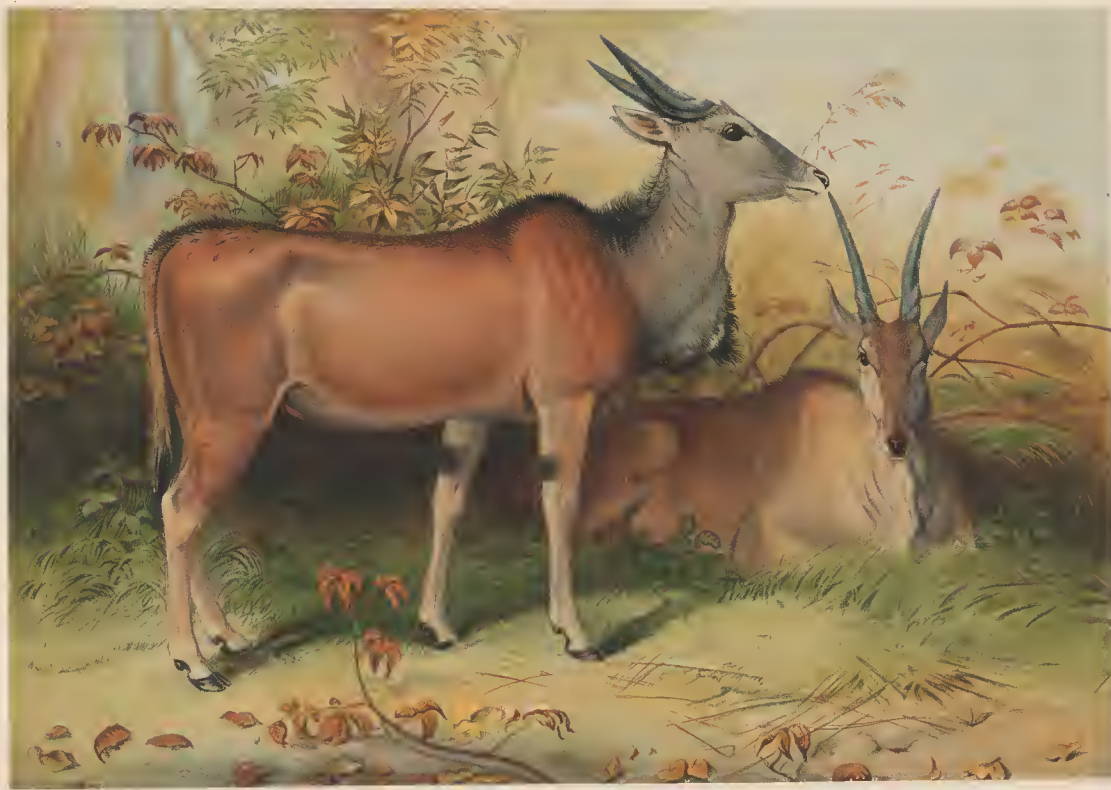
"The Eland frequents the open prairies and low rocky hills interspersed with clumps of wood, but is never to be met with in a continuously wooded country. Rejoicing especially in low belts of shaded hillocks, and in the isolated groves of *Acacia capensis* which, like islands in the ocean, are scattered over many of the stony and gravelly plains of the interior; large herds of them are also to be seen grazing, like droves of oxen, on the more verdant meadows, through which some silver rivulet winds in rainbow brightness betwixt fringes of sighing bulrushes. Fat and lethargic, groups may be seen scattered up and down the gentle acclivities, some grazing on the hill side, and others lazily basking in the morning sun-beam. Advancing, they appear to move like a regiment of cavalry in single files, the goodliest bulls leading the van; whereas during a retreat, these it is, that uniformly bring up the rear. As the day dawns over the boundless meads, spread with a rich carpet of luxuriant herbage, and enamelled with pastures of brilliant flowers, vast droves of these lordly animals are constantly to be seen moving in solemn procession across the profile of the silent and treeless landscape, portions of which are often covered with long coarse grass, which, when dry and waving its white hay-like stalks to the breeze, imparts to the plain the delusive and alluring appearance of ripe cornfields."

The limits of the geographical range of the Eland are not yet very accurately known. The Southern animal does not reach Western Africa, being replaced in Senegambia by a nearly allied species, the Derbian Eland (*Oreas derbianus*), described by Dr. Gray in 1857, from horns and imperfect skins procured by Mr. Whitfield on the river Casamance. This splendid antelope, a figure of which has been published in the Series of Illustrations of the Knowsley Menagerie, generally resembles its South-African prototype, but is distinguished by its black neck and dorsal line, and by the wavy white stripes which descend on each side of its body. It is a little-known animal, which, if obtained in a living state, would be a most brilliant addition to our Menageries.

On the Eastern coast Dr. Peters, in his "Zoology of the Mozambique," registers the occurrence of the common Eland upon the faith of a pair of horns obtained from the natives to the north-west of Tété. But, farther in the interior, to the north of Shesheke, a different Eland certainly seems to prevail, resembling somewhat the Western African (*Oreas derbianus*) in its striped body, but differing in the absence of black upon the neck, and other particulars. Of this animal examples have not as yet reached the Museums of Europe, and our only information concerning it is derived from Dr. Livingstone, who has described and figured it* in his notes as a new or striped variety of the Eland. Let us hope that Dr. Livingstone's present expedition will not neglect to bring us home more accurate intelligence concerning this interesting animal.

The accompanying plate represents a young male, about fifteen months old, of the Common Eland, and its mother in the back-ground.

* Livingstone's "Missionary Travels and Researches in South Africa," p. 210.



THE ELAND.

OREAS CANNA.

THE PERSIAN GAZELLE.

Gazella subgutturosa.

PLATE XXII.

THE Gazelles form a distinct section of the numerous and beautiful group of Antelopes, embracing eight or nine species, mostly inhabiting Africa, and rather difficult to separate from one another, owing to many of them running into well-marked varieties. The Dorcas Gazelle of Northern Africa (*G. dorcas*) and the Chikara or Indian Gazelle (*G. bennettii*), (which latter differs from the true Gazelles in the absence of the tear-bag or lacrymal sinus) are the two species which are most frequently seen in our Menageries. The former of these, which breeds with comparative freedom in captivity, is often tamed and kept in a semi-domestic state in the tents of the Arabs, where it is the favourite pet of the Arab ladies, and a common theme of admiration for the Eastern poets.

The Persian Gazelle, which was first described by Gldenstdt and Pallas in the end of the last century, is more rarely met with in a living state. The Zoological Society first received females of this species through the liberality of Alderman Finnis, in one of whose vessels they were brought from Bussorah, on the Persian Gulf. The male which furnished the subject of this drawing, was obtained by purchase, and lived unfortunately but a very short time after its arrival. This Gazelle appears to have a wide range, extending from Asia Minor and the Persian Gulf, through Persia into the Kirghiz Steppes of Central Asia. It differs essentially from the African and Indian Gazelles in its gray color, in the shorter contour of the head, and in the fact of the females being hornless. As it is much more hardy in constitution, it is peculiarly adapted for a place in European collections of living animals. In the plains of Persia and Assyria, where the Persian Gazelle is abundant in small herds, it is a favorite object of sport and is pursued both with the greyhound and the hawk. Mr. Wolf's drawing of this species is the first which has been made from life, and exhibits the characters of this interesting animal in a very different light from the figures of it hitherto published.



THE PERSIAN GAZELLE.

GAZELLA SUBGUTTUROSA.

THE LEUCORYX ANTELOPE.

Oryx leucoryx.

PLATE XXIII.

THE Leucoryx Antelope yields in beauty to none of the numerous members of this attractive group of Ruminants, between sixty and seventy species of which are found in the interior of Africa. It is an inhabitant of the more northern portion of that continent, extending from Western Africa into Abyssinia and Nubia. Dr. Gray tells us that specimens from these two countries which he examined were indistinguishable on comparison.

The Leucoryx, which is now a well-known species in the Menageries of Europe, was first introduced into this country by the late Earl of Derby, who spared neither trouble nor expense in making acquisitions of this group of animals for his living collection at Knowsley. Lord Derby obtained his first female of this species in 1837, but it was not until the retirement of Mr. Cross from the Surrey Zoological Gardens, and consequent dispersion of that collection some six or seven years afterwards, that he succeeded in acquiring a male. Owing to the age of the female at this time, although she twice bred with the male, she failed to rear her offspring, and died in 1846, being, as Lord Derby believed at that time, "the only female in England." A pair subsequently acquired by his Lordship were purchased by the Zoological Society at the dispersion of the Knowsley Menagerie, and with one received through the Hon. A. A. Murray, laid the foundation of their present stock of this graceful Antelope, which now breeds every year in the Gardens.

In Southern Africa the place of the Leucoryx is taken by the Gems-bok (*Oryx gazella*), likewise a most beautifully marked species. Another nearly-allied animal is the Beisa Antelope (*Oryx beisa*), discovered by Dr. Rüppell, in Abyssinia; and a fourth of the same group is the recently named Beatrix Antelope, of Dr. Gray (*Oryx beatrix*). Of the latter species the only known specimen was living for a short time in the Menagerie, having been presented to the Society by Captain John Shepherd, of the East India Company. The Beatrix Antelope, which is well figured in the Society's Illustrated "Proceedings" (1857, Mammalia, plate lv.), was imported into this country from Bombay, but its true home is believed to be the eastern coast of the Red Sea.



THE LEUCORYX ANTELOPE.

ORYX LEUCORYX

THE PUNJAB SHEEP.

Ovis cycloceros.

PLATE XXIV.

BRIGADIER General Hearsey, when living at Sealkote, devoted much of his leisure to the study of Natural History, and knowing the desire of the Zoological Society to possess a collection of the wild Ovine Animals of India, applied himself to the difficult task of obtaining and transmitting to England living specimens of such species as might be attainable. By the co-operation of Lieut. Bartlett, of the Bengal Army, a male, and subsequently a female of the present fine species of Wild Sheep, were captured in the Punjab, and successfully sent home. The female was both young and delicate when she arrived, but good treatment soon re-established her vigor, and in 1858 she gave birth to the twins figures of which appear in the drawing. These animals were both females, as was also a second set of twins which she produced in the subsequent year. In 1860 the same female gave birth to a single male lamb, which, however, unluckily died before it was many weeks old.

The Punjab Sheep passed for several years in the Menagerie under the name Vigne's Sheep (*Ovis vignii*), being supposed to belong to the species described under that name by Mr. Blyth in the Society's "Proceedings" in 1840 (p. 70). In a communication lately made to the Society, I have attempted to prove that we have misnamed the animal, and that it is really quite different from the Wild Sheep of Ladakh and Thibet, which should more properly bear the name *Ovis vignii*. My attention was first called to this point by my friend Captain Speke, who, upon seeing the present animals in the Gardens, at once declared them to be very different from those which he had himself pursued and shot in the higher regions of Little Thibet. There seems to be little doubt that Mr. Blyth's original name, *Ovis vignii*, comprehends both of these Wild Sheep. He associates together, under the same scientific appellation, "the *Sha* of Little Thibet," and the "*Koch* of the Sulimani range between India and Khorassan." His description is perhaps rather referable to the latter, being the animal which we have alive in our Gardens. But it seems better that the name *Ovis vignii* should be restricted to the Tibetan animal for two reasons: first, because the Sheep discovered by Mr. Vigne in "Little Tibet, where the river breaks through the chain of the Himalaya," and dedicated to its discoverer by Mr. Blyth, was doubtless the *Sha*; secondly, because the present animal, the *Koch*, or *Oorial* of the Sulimani range, has already been well described by Captain Hutton, who has proposed to call it *Ovis cycloceros*, from the nearly circular shape which the adult male's horns take, as may be seen in Mr. Wolf's admirable figure.

Captain Hutton tells us that the "Bearded Sheep," as he also calls this animal, from the fine black beard which adorns the throat and chest of the males, "inhabit the mountainous track of Khorassan, being found throughout the Sulimani, Kijet Amraun, Hindoo Koosh, and Huzarreh Hills, descending in winter into the plains and valleys in small flocks. They are pursued by the hunters for the sake of the flesh which is good and well-flavoured, while the horns are placed as trophies of success and proofs of skill upon tombs and temples."

Dr. A. Leith Adams, who has contributed many valuable notices of the habits and haunts of the animals of Northern India, to the Society's "Proceedings," informs us (P. Z. S. 1858, p. 526) that the Punjab Sheep "frequents bleak and barren mountains, composed of low ranges, intersected by ravines and dry river courses, where vegetation is scanty at all seasons, and goats or sheep are seldom driven to pasture. It is found in small herds, and being fond of salt, is generally most abundant in the neighbourhood of the salt mines. Shy and watchful, it is difficult to approach, and possesses in an eminent degree the senses of sight and smell. It is seldom seen in the day time, being secreted among rocks, whence it issues at dusk to feed in the fields and valleys, returning to its retreat at day-break.

"When suddenly alarmed, the males give a loud shrill whistle, like the Ibex. This is an invariable signal for the departure of the herd, which keeps moving all the rest of the day until dusk. Their bleat is like that of the tame species; and the males fight in the same way; but the form of the body and infraorbital glands simulate the Deer; hence it is often called the "Deer Sheep." It equals the Deer in speed and activity.

"The female gestates seven months. The rutting season is in September. The young are often caught, but are difficult to rear. I attempted to rear several; and although they became very tame, and took to a she-goat, all eventually died of a distemper accompanied by a discharge from the nose, and cough. The lungs were found, after death, in an inflamed state, shewing in fact, well-marked cases of acute pneumonia. With care, however, they can be domesticated; and I have seen them become as docile and tame as any of the domestic varieties. The males, however, are apt to become pugnacious and unmanageable."



VIGNE'S WILD SHEEP.

OVIS VIGNEL.

THE THAR GOAT.

Capra jemlaica.

PLATE XXV.

THE Thar, or Tahir, *Capra jemlaica*, of Col. Hamilton Smith, is one of the most striking ruminants found in the Himalayas, for their unique specimen of which the Society is indebted to the exertions of Captain Townley Parker, late of the 53rd Regiment. The present drawing was made while the animal, which is still living at the Gardens, was in his summer dress, soon after his arrival in 1852; but, with advanced age, the shaggy mane, always greater in winter, has gradually developed into proportions as magnificent as that of a Lion's. The pale marks on the back of the legs have become bright and clearly defined, while the general colour of the body-hair has become deep and intense dun.

Of the habits of the Tahir in a state of nature, the following account is given by Colonel Markham, in his work entitled "Shooting in the Himalayas."

"The general haunts of the Tahir are the rocky faces and grassy slopes of hills which are almost free from forest, or with but occasional patches; though many inhabit the forest itself, where the ground is steep and rugged and interspersed with ledges of rock and abrupt projections. When the hills attain an elevation of more than 8,000 feet on the southern and eastern slopes, the forest consists principally of oak; the ground is dry and often rocky, the trees in many parts thinly scattered, and the under-herbage is much of the same grassy character as the pasturage of the hills which are entirely free from forest. On the opposite slopes, the forest is of a much denser description; towering above the oaks are immense black pine-trees, and large patches entirely of chestnut, with box, yew, and many other smaller trees intermingled: the ground is damp, and the under-herbage long rank weeds, which grow higher than a man's body. It is only the former description of forest land that the Tahirs regularly inhabit; they are seldom seen on the latter."

Dr. A. Leith Adams, in his remarks on the habits and haunts of Indian Mammalia, published in the Zoological Society's "Proceedings" for 1858, tells us that the Thar is common on the Pir Pinjal ranges of Cashmere, and still more so on the mountains near the banks of the Chenab, at Khistewar. He states that the female has smaller horns, and is without the mane.

Besides the Tahir the Society's collection embraces two other fine species of wild goats, namely, the Markhor of the Punjab (*Capra falconeri*), and the Caucasian Wild Goat (*C. caucasia*), which inhabits the Caucasus, and neighbouring mountain-ranges of Western Asia.



THE THAR GOAT.

CAPRA JEMLAICA.

THE ALPACA.

Auchenia pacos.

PLATE XXVI.

THE extraordinary success which has been obtained for fabrics of the wool of the Alpaca, by the process invented and perfected by Mr. Titus Salt, of Bradford, has given extreme interest to the acclimatization of this animal, not in Europe merely, but in Australia, where everything bearing upon the development of the wool-trade is of the utmost importance.

The Huanaco, the Vieugna, the Llama, and the Alpaca (of all of which animals the Society's collection contains living examples), are, according to some writers, four distinct species of the genus *Auchenia*. However this may be, it certainly seems clear that the Huanaco, which is found in a wild state from Bolivia to Patagonia, is distinct from the Vieugna, which is limited to Peru. The Llama and Alpaca are now known only in a domestic or semi-domestic state; but as the same thing occurs in the case of both species of Camel and the Horse, it does not necessarily follow that they have been artificially produced by a course of breeding from the Wild Huanaco, or from crosses between the Huanaco and the Vieugna, as some authorities maintain, although this is, perhaps, the most reasonable view of the case.

The main characteristic of the Alpaca is the shortness of its head in comparison with the Llama and Huanaco, and the peculiar texture of its fleece, which is different from that of either of the others.

The Vieugna produces towards the shoulders an extremely beautiful wool, which, when carded, is more than double the value of that of the Alpaca, the latter reaching to about seven shillings, and that of the Vieugna to fourteen shillings per pound. The very small quantity of wool produced by the Vieugna, and the difficulty of breeding the animal will, however, be insuperable obstacles to its being usefully established either in Europe or in Australia.

The Alpaca proved itself extremely prolific under the management of the late Mr. Thompson, while he had charge of the late Earl of Derby's establishment, at Knowsley. Had that great collection continued in existence for a few years longer, there is little doubt that the herd of Alpacas would have attained a numerical strength, which would have rendered us independent of any future importation, except as desirable additions of new blood.

The period of gestation in the Alpaca is eleven months. The females, when in full health, have fawns in very rapid succession. This animal varies in colour, like the Llama, being black, brown, white, pied, and spotted. The individuals from which the drawing was made are beautiful specimens of the darkest variety, and have probably never been surpassed for size or quality.

The Alpaca is not used in Peru as a beast of burden, like the Llama, but is valued only for its wool, of which the Indian blankets and ponchos are made. Von Tschudi informs us that it is kept in large flocks, which graze on the level heights of the Puna Region of the Andes, at an elevation of from 14,000 to 16,000 feet above the sea-level, throughout the whole year. At shearing-time only they are driven to the huts. They are in consequence very shy, and run away at the approach of a stranger.

Von Tschudi, who strongly maintains the validity of the specific distinctness of the four species of Llamas, gives us in his "Fauna Peruana" the following account of their geographical distribution:—

"The Huanaco extends all over the high plains of the Andean Regions, from Ecuador to Patagonia, attaining its maximum in Middle Peru. The Llama, on the other hand, does not range further north than the southern half of Peru, and is scarce even in Middle Peru, being most abundant round the mountain-knot of Asangara. The Alpaca is confined to Southern Peru and Northern Bolivia. The Vieugna is more widely spread, occurring all over Peru, in the southern part of the republic of Ecuador, and down as far as the middle of the republic of Bolivia."



THE ALPACA.

LAMA PACOS.

THE HIPPOPOTAMUS.

Hippopotamus amphibius.

PLATE XXVII.

ALTHOUGH in former geological epochs Hippopotami of several species ranged throughout Europe and Asia, from England to the Himalaya, this peculiar and well-defined form is now confined entirely to Africa, and numbers probably but two species. The second of these is much smaller in size, seldom weighing more than 500 or 600 pounds. It was discovered in the St. Paul's River in the interior of Liberia, where it is abundant within one hundred and fifty miles of the coast. It was first described in 1844, by Dr. Morton, of Philadelphia, under the name *Hippopotamus liberiensis*, from skulls in the collection of the Academy of Natural Sciences of that city, casts of which were transmitted to the Zoological Society, and to most of the Scientific bodies in Europe. A complete skeleton was subsequently received by the Academy, and is one of the ornaments of their magnificent osteological collection, but, strange to say, no specimen of this animal has yet reached our Museums.

The larger *Hippopotamus amphibius* inhabits almost every river of the East and South, from which the advances of man have not driven it; and on the Western Coast considerable numbers occur at least as high up as the Gambia. Along the North Coast there is no suitable haunt but the Nile. This river—the historic cradle of Behemoth—in its remoter streams still gives shelter to untold herds, and supplies us with the ivory which reaches us through Alexandria.

After many unsuccessful negotiations at the Cape, and on the West Coast, to obtain a living specimen of this singularly interesting animal, the Zoological Society were fortunate enough to conciliate the favor of the Viceroy of Egypt, through the influence of the Hon. C. A. Murray, and a male was captured, by H.H. order, in the White Nile, about the month of July, 1849. This animal was successfully transported from Alexandria, whither it had been sent down by the Viceroy, to the Society's Establishment in the Regent's Park, and arrived there on the 25th of May, in the following year. He then measured three feet in height, and about six feet six inches in length. The comparatively rapid development of the larger Pachyderms, has been satisfactorily proved by the opportunities of observation afforded by this animal and a young elephant which came into the Society's possession in 1851: and the evidence thus obtained is, as far as it goes, entirely in contravention of the received belief on this subject. The Hippopotamus, at the age of six years and a-half, expanded to four feet seven inches in height, three feet eight inches in thickness at the shoulder, and to eleven feet in length.

In the summer of 1854, and in fact only four days before the death of Abbas Pasha, a female Hippopotamus was transmitted by H.H. to the Society, in fulfilment of his promise to Mr. Murray, through his successor the Hon. F. W. Bruce; and they thus had the good fortune of including in their collection the first pair of Hippopotami which have been seen together in Europe since the exhibitions of the Roman Circus, when the Emperors accumulated them with other Zoological wonders, not for information, not for purposes of art or economy, but for senseless and brutal slaughter.

The artificial circumstances in which the Hippopotamus is placed in the Establishment of the Society, and of the National Menagerie in Paris, have had no evil influence on either the health or growth of this species; and we look forward with some degree of confidence to a long and favorable acquaintance with the animals which have thus re-appeared in the public spectacles of Europe after an interval of 1,500 years.

The pencil of Mr. Wolf has so copiously illustrated the action of the Hippopotamus, that little remains to be said on the subject. It may be remarked, however, that when under the water his motion is rapid and adroit, avoiding obstacles with extreme nicety: and the peculiarities of his structure, considered in reference to his habits, afford one of the most beautiful illustrations of adaptation to a particular end, which can be found in the whole range of nature.

The muscular action by which the nostrils are closed (not dissimilar to the same structure in the Seal) is one of the most obvious of these: and not less interesting is the singularly beautiful provision for withdrawing the prominent eye-ball into safety, on its approach towards any dangerous substance.

The Hippopotamus in confinement is capricious in temper, and in his affections. Commencing with a love for his keeper, Hamet Saffi el Canaana, so intense that he could not sleep without touching him, and so jealous that he avenged his occasional absences, while on board the steam-ship Ripon, with ingeniously mischievous resentment; commencing with a personal attachment so strong, which he has only modified and made less demonstrative towards his present attendant, he has learnt to hate as well. There are individuals whose appearance always excites his wrath; and certain classes of persons, especially laborers and workmen wearing linen-jackets. The inveterate feeling against the latter is probably traceable to the discomfort he experienced from them at the time his present habitation was in the course of construction: his distinction of individuals is more difficult to account for. The gentleman towards whom he most constantly expresses his displeasure, maintains that he never "gave his fat friend any cause of offence whatever, except that he one day addressed to him some expressions in Arabic which were certainly not complimentary."



THE HIPPOPOTAMUS.

HIPPOPOTAMUS AMPHIBIUS.

THE BOSCH-VARK.

Potamochoerus africanus.

PLATE XXVIII.

ALTHOUGH a true Pig or Wild Hog, generally referred to the same species as the European Wild Hog (*Sus scrofa*), is abundant in the ravines of Marocco, Algeria, and Tunis; all along the southern shores of the Mediterranean, this form of the Swine-family is not met with in Africa proper, southwards of the Great Desert, its place being there taken by the River-Hogs (*Potamochoerus*). Of these the only two known species are represented in the accompanying and following illustrations, taken from living examples in the Society's Gardens.

The Potamochoeres, or River-Hogs, were first distinguished from the true Pigs by Dr. Gray, in 1852. They may be recognized by the lengthened and peneilled tufts which ornament the extremities of their ears, by the elongated form of the head, and by the large bony protuberance situated on each side of the face, half way between the nose and the eye. There is also a slight difference in their dentition from that of the typical Pigs.

The South-African species of River-Hog is well known in the eastern parts of the Colony of the Cape of Good Hope, where it goes by the name of the Bosch-Vark or "Wood Hog," and is said to occur also in Madagascar, but perhaps on insufficient authority.

Sir Andrew Smith remarks that specimens of it vary very much in colouring, scarcely any two exhibiting the same colours. "Some are of a brownish black, variegated with white, and others almost entirely of a light reddish brown, or rufous tint, without the white markings."

Although the Bosch-Vark has long been known to naturalists, but one specimen of this animal, it is believed, has ever reached Europe alive. This was a male, obtained by the Society in the beginning of 1858, and still living in the Menagerie. It forms part of an unequalled series of the *Suidæ*, or Swine-family, which have lately been brought together in a building erected expressly for their accommodation, situated to the right hand of the principal entrance to the South Gardens. This collection, which embraces representatives of all the different forms of this useful and interesting group of animals, is composed of the following eleven species and varieties:—

- | | |
|---|---|
| 1. The Common Wild Boar of Europe (<i>Sus scrofa</i>). | 6. The Red River Hog of West Africa (<i>P. penicillatus</i>). |
| 2. The Masked Pig of Japan (<i>S. scrofa</i> , var. <i>dom.</i>). | 7. The Babirusa (<i>Babirusa alfurus</i>). |
| 3. The Wild Boar of Barbary (<i>S. scrofa</i> , var. <i>barbara</i>). | 8. The Collared Peccary (<i>Dicotyles torquatus</i>). |
| 4. The Javan Wild Boar (<i>S. vittata</i>). | 9. The White-lipped Peccary (<i>D. albirostris</i>). |
| 5. The South-African River Hog (<i>Potamochoerus africanus</i>). | 10. The Ethiopian Wart Hog (<i>Phacochoerus aethiopicus</i>). |
| | 11. The Ælian's Wart Hog (<i>P. æliani</i>). |



THE BOSCH-VARK.

POTAMOCHOERUS AFRICANUS.

THE RED RIVER HOG.

Potamochoerus penicillatus.

PLATE XXIX.

THE first living specimen of this ornamental member of the Swine-Family was imported into Liverpool in 1852, and purchased by the Zoological Society in September of that year. It was a male, captured when swimming across the Cameroons river, in Western Africa. A female of the same species was afterwards procured through the good offices of the authorities of the Jardin des Plantes of Paris, and bred with the male four times, though she only reared one litter, consisting of two females, which are now fully adult. One of these was parted with in exchange to the Zoological Society of Amsterdam. The second is still in the Regent's Park Gardens, and the parents being both unfortunately dead, has been placed in the company of the male Bosch-Vark, or South African River Hog, a closely allied species, a portrait of which is given in the previous plate.

The Red River Hog is extremely rare in collections of Natural History. It is deficient in all the great continental Museums, as it was likewise in the British Museum previously to the death of the Society's specimens. On the arrival of the first male in 1852, it was generally regarded as belonging to an undescribed species, and received from Dr. J. E. Gray the name of the "Painted Pig of the Cameroons," and the specific appellation, *pictus*, from its beautiful deep colouring. It was, however, subsequently discovered that this Pig had already been described by Professor H. Schinz, in his work entitled "Monographies des Mammifères," from a single example in the Museum of Basle, in Switzerland, and called *Sus penicillatus*, from the long pencilled tufts which terminate its ears.

Some authorities have been inclined to suppose that the present species is a mere variety of the River Hog of Southern Africa. But no zoologist who has seen the two animals living side by side, as they are now placed in the Society's Gardens, or who will even take the trouble to compare together Mr. Wolf's figures, drawn from the living animals, could fall into such an error. Besides the very distinct deep red colour of the West African animal, the short adpressed hair, small nuchal crest, thick tail, and elongated pencilled ears, clearly separate the present species from its southern representative, in which the hair is long, and more or less blackish, the dorsal crest large and bushy, the tail slender, and the ears and ear-pencils not nearly so much developed. These differences have been well pointed out by Dr. Gray, in his note upon this subject, in the Society's "Proceedings" for 1858.



THE SOUTH AFRICAN RIVER HOG.

POTAMOCHERUS AFRICANUS.

THE GREAT ANTEATER.

Myrmecophaga jubata.

PLATE XXX.

THE Great Anteater—an animal peculiar to the hot tropical forests of South America—is one of the most singular creatures which has ever lived in the Society's Menagerie, and presented unusual difficulties in its management. The first example received arrived in the autumn of 1853; the second in the February following; and a third, but very young specimen, was presented to the Society by Captain Abbott, of the Royal West Indian Mail Steam Service, in the beginning of May, 1856. The latter lived but a few days, having suffered considerably on the passage from Brazil. The first, from which Mr. Wolf's drawing was made, survived the winter of 1853-4, and lived for upwards of nine months in the Gardens. During the whole of that period it refused every kind of nourishment, except a mixture of eggs and milk, with the occasional addition of a little comminuted flesh, which, although bearing but little resemblance to its natural food, appeared for some time to afford it sufficient support. The manner in which this liquid was lapped into the small orifice of the mouth, explained the sweeping action of the flexible, viscous, prehensile tongue, with which, in its native forests, the Anteater deals death to the Termites, or White Ants, after destroying their nests with his powerful fore-limbs, and their armature of long, sharp claws. The sweep of the tongue, at its greatest prolongation, is not less than eighteen inches, and its flexibility is marvellous. The elaborate system of muscles by which this extraordinary structure is controlled, has been specially elucidated and figured in Professor Owen's Paper on the Anatomy of this Animal, published in the fourth volume of the Society's "Transactions."

Although perfectly edentate or toothless, and with a mouth which scarcely extends beyond the tip of the nose, the jaws of the Anteater are of great length, and give an extremely characteristic bird-like expression to its physiognomy. The motion of the jaws is distinctly seen under the covering of skin, during the act of feeding, and adds not a little to the singular aspect of the animal.

To preserve the sharpness of the claws of the fore-feet, which are indispensable for its defence, as well as for the peculiar operation by which the Termites are dislodged from their well-built towers, the Anteater folds them under the sole, and walks on the outer side of the foot. Thus the points of the claws never come in contact with the ground, and they are as effectually protected from injury as the claws of a cat, although by a very different provision.

This Anteater, according to Mr. Waterton, is invariably found in moist umbrageous retreats in the heart of tropical forests, where it leads a quiet life of much repose. In like manner most of its time in confinement is passed in sleep, during which the head is turned downwards, under the body, between the fore-legs; and the tail is folded forwards, and covers the rest of the animal with a screen of long pendulous hair, altogether impenetrable to sight. In this state the Great Anteater occupies but little space, and becomes a very unnoticeable object.

In its slow and measured walk the tail is stretched out in a straight line with the back, and the animal then presents a length of between six and seven feet, of which the head occupies about one foot, and the tail three. On awaking it unfolds itself with solemnity, and generally sits up on its hanches, with the powerful fore-legs planted firmly, like buttresses, in front, stretching out its long bird-like muzzle to the right and left, in the attitude, perhaps, in which, according to Azara, it awaits the onslaught of an enemy. It cleans its face and little mouth by rubbing them with the knee-joint, slightly bent for that purpose, the viscid saliva and the adhesive nature of its food rendering some such operation a matter of continual necessity.

Besides the Great Anteater there are two other well-known species of the group, of inferior dimensions, which inhabit the forests of Central and Southern America. These are the Tamandua, or Four-toed Anteater (*Tamandua tetradactyla*), and the Little, or Two-toed Anteater (*Cyclothurus didactylus*). Both these animals have prehensile tails, and are more or less arboreal in their habits, the Little Anteater probably very seldom descending to the ground. Of the Little Anteater the Menagerie has once contained a single example, which, however, lived but a short time in this country. It was brought from Brazil by E. B. Webb, Esq., Civil Engineer, in September, 1858, and liberally presented to the Society.



THE GREAT ANTEATER.

MYMECOPHAGA JUBATA.

THE THYLACINE.

Thylacinus cynocephalus.

PLATE XXXI.

THE Zoological Society have possessed three individuals of this extremely curious and interesting animal, the only specimens which have ever reached Europe alive.

The Thylacine, the largest and most powerful of Carnivorous Marsupials, is common in the more remote parts of Tasmania, where it is called by the names of "Tiger" and "Hyæna" indiscriminately. It is principally nocturnal in its habits, but also moves about during the daytime, though upon these occasions, perhaps owing to its rather imperfect vision by day, its pace is said to be slow. The species is extremely limited in its geographical range, being entirely confined to the island, and no trace whatever of its existence having been yet discovered on the Continent. But its place there was filled in a former geological period by an animal very closely allied to it in structure, to which Professor Owen has given the name of *Thylacinus spelæus*, from fossil remains discovered in the Wellington Valley.

The first description of the Thylacine appears in the ninth volume of the "Transactions" of the Linnean Society, from the pen of Mr. Harris, in consequence of which M. Temminck has proposed for it the name of *Thylacinus harrisii*.

The Zoological Society are indebted to the exertions of Mr. Ronald Gunn and Dr. James Grant, of Launceston, for the first pair of Thylacines, which were sent home by those gentlemen as a gift in the year 1849. Under the skilful management of Captain Gwatkin, of the barque *Stirlingshire*, to whom they were intrusted, they arrived in perfect safety, and the female survives to the present time. In a letter addressed to the then Secretary of the Society, by Mr. Gunn, under the date of December 29, 1849, he states as follows:—

"Both these animals have been caught in snares, upon the upper part of the St. Patrick's River, about thirty miles N.E. of Launceston. The female, which was first caught, was placed for some time in a small unfinished house at the St. Patrick's, until I could devise means of getting her down here, and when I sent a trustworthy person up for her, he assured me that she was excessively agile, springing from the floor to the top of the walls, six or eight feet, and from joist to joist, near the roof, with the activity of a cat. He also informed me that the Thylacine will not eat the Wombat, an animal exceedingly abundant on the St. Patrick's River, and with which they attempted to feed it during the month it was there, previous to my having it brought down to my residence.

"An observation of mine, contained in a letter to Sir W. Hooker, which was not meant for publication, has been misunderstood, and has led to the propagation of an error for which I am very sorry. In it I said the Thylacine's tail was *not compressed*, in reference to an observation of Mr. Swainson's in an Encyclopædia (then recently published) that the tail of the Thylacine was compressed, *which suggested the supposition that it was used in swimming, &c.* It was to the latter part of this observation that my remarks were particularly applied (vide Annals of Natural History, vol. I., p. 101), and I meant that the tail was not compressed to such an extent as to have justified the inference that it was useful in swimming. The tail is obviously slightly compressed, but not more so, I think, than the tails of the Dasyures, to which aquatic habits are not attributed. In writing hurriedly, and not for publication, I did not express myself with the precision I ought to have done. I merely wished to point out that the tail would not justify the inference of Mr. Swainson (which I thought very far strained), that the animal was aquatic in its habits and piscivorous."

While in the hands of Mr. Gunn, the Thylacines were fed exclusively on mutton, upon which diet they continued to thrive during the voyage, as well as after their arrival in London. The Thylacine originally preyed on the Kangaroos and Bandicoots, but since the introduction of sheep into the colony, it has become more addicted to attack the sheep-folds. Perpetual war is therefore waged against it by the Tasmanian shepherds, whose determined persecution must eventually lead to its extinction.



THE THYLACINE.

THYLACINUS CYNOCEPHALUS.

THE TASMANIAN WOMBAT.

Phascolomys wombat.

PLATE XXXII.

Two species of the peculiar form of Marsupials, called Wombats, exist in Australia. One of these, the subject of the present illustration, is found in Tasmania, New South Wales, and the islands in Bass's Straits; the other, the Broad-fronted Wombat (*Phascolomys latifrons*) of Professor Owen, is peculiar to Southern Australia.

The pair of the Tasmanian Wombat now belonging to the Society, had no sooner been placed in the inclosure appropriated to them in the centre part of the Southern Gardens, than they began to excavate a burrow. In this they lived for a long time, at first showing themselves but rarely by day time, and, after the usual habit of Marsupials, coming out to feed at dark. They are now become much more bold, and may be seen at almost any time of the day, nor do they object to being handled or scratched by any person who chooses to make acquaintance with them. The Wombats bred in their enclosure in 1858, producing a single young one, which, together with its mother, is represented in the accompanying plate.

Mr. Gould, who has figured the Tasmanian Wombat in the Seventh Part of his "Mammals of Australia," tells us that this animal is extremely common in a wild state in some parts of Van Dieman's Land. "I met with it myself," he goes on to say, "in the sterile districts behind Mount Wellington, and in many other situations where a similar character of country prevails. It is also found in the islands in Bass's Straits, where the specimen first described, in 'Collins's Voyage,' vol. ii. p. 153, was procured. In its habits it is nocturnal, living in the deep stony burrows, excavated by itself, during the day, and emerging on the approach of evening, but seldom trusting itself far from its stronghold, to which it immediately runs for safety on the appearance of an intruder. The natives state, however, that it sometimes indulges in a long ramble, and if a river should cross its course, quietly walks into the water, and traverses the bottom of the stream, until it reaches the other side."

Although but two species of Wombat are now found in Australia, a third member of this genus of Marsupials is known to have existed there in a former geological epoch. The caves of the Wellington Valley contain fossil remains of a Wombat allied to the recent species, but which Professor Owen, after a careful comparison, has been induced to regard as distinct, and to call *Phascolomys mitchellii*.

The Wombat appears to be very hardy in constitution, and bears the vicissitudes of the English climate without the necessity of any further protection than a wooden box well supplied with straw.



THE TASMANIAN WOMBAT.

PHASCOLOMYS WOMBAT.

THE SAKER FALCON.

Falco sacer.

PLATE XXXIII.

THE Saker Falcon, although one of the species most esteemed in the days of Falconry, was confounded by Pennant, Latham, and other writers at the beginning of the present century, with the Lanner and its allies of the group of the true Falcons. Professor Schlegel, in his great work on Falconry, was the first to point out the true characters of this bird, and to restore to it its ancient name of *Falco sacer*, the latter term being derived from its Arabic name of "El Sakkr," and not from any idea of sanctity being attached to it.

The Saker, which is found wild in the eastern portion of Europe and in Western Asia, is still highly prized by the Arabian Falconers. "The price of a well-trained Sakkr or Lanner," says Mr. Tristram, in his interesting book, "The Great Sahara," "is from 200 to 300 Spanish dollars (£40 to £60), and I repeatedly, but in vain, offered 200 dollars for one. The Sheik considers a Falcon of the same value as a thorough-bred horse, and will exchange one for the other."

The accompanying plate represents the same individual of this species in two different stages. The upper figures were taken soon after the bird arrived in the Society's possession, and the lower, with the transverse bars on the shoulders, after it had attained fully adult plumage, having been for some time in the Gardens. The specimen in question was obtained in Cilicia, and presented to the Society by the late Mr. Burkhardt Barker, along with a female Wild Ass (*Equus hemippus*), which still lives in the Menagerie.

Our example of this Falcon had evidently been well trained, although, owing to Mr. Barker's absence, it was never flown here. From its extreme gentleness it came home in the most beautiful condition, on a very clever Arab block, specially adapted for travelling purposes. This is an inverted cone, the base covered with leather, and the apex prolonged by a pointed iron rod, of eighteen inches in length, by which it is easily fixed anywhere, on the floor of a room, or in the open air upon the ground. The Bird sits on the inverted base with great comfort, and without the possibility of injuring either tail or wings. The Saker moulted several times on this block, but at last, from want of exercise, became internally diseased, and we lost him.

The Saker was found breeding in the month of April, 1860, by Mr. W. H. Simpson, in the Dobrudska, as will be seen by reference to the account of its nesting given by that gentleman in the "Ibis" for October of that year. The eggs then obtained, one of which is figured in the same Journal, are probably the only perfectly authenticated specimens known of the eggs of this Falcon.



THE SAKER FALCON.

FALCO SACER.

THE GREENLAND FALCON.

Falco groenlandicus.

PLATE XXXIV.

UNDER the name of the Gyrfalcon three distinct species were formerly confounded—the White or Greenland Falcon, the Iceland Falcon, and the Norwegian Falcon. In 1823, M. Brehm appears to have for the first time clearly distinguished the two former of these birds. Herein he was followed by Mr. John Hancock, who, in 1838, brought the subject before the British Association for the Advancement of Science, at their meeting at Newcastle-upon-Tyne. But at that time, Mr. Hancock, as M. Brehm before him, fell into the error of confounding the adult of the Greenland Falcon with the young of the same bird, and of describing the latter as brown, like the immature Iceland Falcon. In 1854, however, he was enabled fully to set to rights this misconception, and to announce that the Greenland bird was never dark in any of its stages, but invariably light-coloured from the nest. This opinion was grounded upon observations made upon living birds in the possession of the Zoological Society, backed by the inspection of upwards of one hundred and fifty specimens, and the careful examination of no less than seventy individuals. Mr. Hancock's latter paper, which was published in the "Annals and Magazine of Natural History" (ser. 2, vol. xiii., p. 110), appears to have been somewhat neglected by ornithologists, and hence the confusion generally prevalent on this subject has never been entirely dispelled. But there is little doubt of the perfect correctness of his views, which, it may be remarked, are strictly in accordance with the traditions of Falconry, and are now shared by the highest authorities on these matters.

The Greenland Falcon, as its name implies, is found chiefly in Greenland, though it is believed to occur also in Labrador. From these deserted regions the adults seldom wander to other lands, but the young birds in autumn and winter occur regularly in Iceland, and not unfrequently in the British islands and other localities still more remote from the place of their origin. They are, no doubt, driven away by their parents, as is the custom with most birds of prey, and perhaps follow the large flocks of Waterfowl, which are bred in the north, in their southern migrations.

The very beautiful male of this Falcon, from which Mr. Wolf's drawing was made in 1854, was obtained direct from Greenland, and moulted for several successive seasons in the Society's Menagerie, without any perceptible change in the size or character of the spots, it having been received in a perfectly adult state. Another male bird, received from the same country in 1859, is still living in the Society's Gardens.



THE GREENLAND FALCON.

FALCO GREENLANDICUS.

THE ICELAND FALCON.

Falco islandicus.

PLATE XXXV.

As the present drawing represents a perfectly adult Iceland Falcon, which, like the Greenland bird figured in the preceding plate, moulted for several successive seasons in the Society's Gardens, without any change of character in its plumage, it will be seen that the two species, as has been already stated, are as distinct and well-marked as possible. The principal point to be noticed is this, that although there is considerable variation amongst the individuals of each of the two forms, it will be invariably found, on examination, that in the Greenland Falcon the white is, as it were, the ground colour upon which the dark markings are displayed, whereas, in the Iceland Falcon, the ground is dark, with light markings upon it. In other words, the prevailing hue in the Greenlander in all stages is *white*, whereas, in the Icelandier it is dark, being brown or slaty-grey, according to the age of the specimen.

The Iceland Falcon, though stray examples in immature dress have occasionally occurred in Great Britain, is principally found in that island so full of natural wonders whence its ordinary appellation is derived. It is said to be by no means uncommon here, and is also found, not unfrequently, in the southern part of Greenland.

In the golden days of the Danish Monarchy the Royal Falconers sailed once every year to Iceland to receive the tribute of these noble Falcons, which had been taken from their nests for that purpose. The high value set upon such of these as survived the perils of the voyage, and the severities consequent on the discipline practised on them whilst in training, is a matter of history.



THE ICELAND FALCON.

FALCO ISLANDICUS.

THE ANGOLAN VULTURE.

Gypohierax angolensis.

PLATE XXXVI.

THE Zoological Society have, on several occasions, exhibited specimens of this rather scarce Vulture in their aviaries. The first examples of this bird were received in 1829, and were then quite in immature plumage. Their origin not having been ascertained, and the species being but very little known, they were considered by the late Mr. Bennett, formerly Secretary of the Society, as belonging to an undescribed species of the American group of Caracaras (*Polyborus*), to which, in some respects, the Angolan Vulture presents a singular resemblance. They were accordingly included in the second volume of "The Gardens and Menagerie of the Zoological Society," under the designation of the "Vulturine Caracara Eagle." It was subsequently discovered that these birds were referable to a species long before described by the older authors as the *Vultur angolensis*. The bird is really, however, very different in structure from the true Vultures, and is arranged by some systematists as constituting of itself a peculiar family of Raptorial Birds.

Mr. Wolf's illustration of the Angolan Vulture represents two individuals of this species, which were living in the Gardens, in 1852. One of them, the front figure in the plate, had not then reached maturity, as is evidenced by the remains of his youthful dress, mingled with the pure white colouring. The figure in the background represents the nearly-adult plumage, the white being rather more pure on the shoulders in aged specimens.

The Angolan Vulture inhabits the coast-region of Western Africa, and is said by the African traveller Pel to resemble in its habits the Sea-Eagles (*Haliastur*) of the shores of the northern portions of both hemispheres, but very little is known about it in a state of nature. In captivity it presents no peculiarities to distinguish it from the larger Vultures and Eagles.



THE ANGOLAN VULTURE.

GYPOHIERAX ANGOLENSIS.

THE CHINESE PHEASANT.

Phasianus torquatus.

PLATE XXXVII.

OF the beautiful group of birds which constitute the true Pheasants—the genus *Phasianus*, of modern authors, as now restricted—six species are known, all of which inhabit the northern portion of the Old World. Placing our Common Pheasant (*P. colchicus*), believed to have been originally imported into Europe from Western Asia, at the head of the list, they may be arranged as follows:—

- | | |
|--|---|
| 1. The Common Pheasant (<i>P. colchicus</i>), Europe and Western Asia. | 4. The Japanese Pheasant (<i>P. versicolor</i>), Japan. |
| 2. The Chinese Pheasant (<i>P. torquatus</i>), China. | 5. Sœmmerring's Pheasant (<i>P. sœmmerringii</i>), Japan. |
| 3. The Mongolian Pheasant (<i>P. mongolicus</i>), Altai mountains. | 6. Reeves' Pheasant (<i>P. reevesii</i>), Cochin China. |

It is believed that most, if not all, of these splendid birds, might easily be introduced into and propagated in this country, and attempts have already been made to effect this object with several of them. Of the first arrival of the Japanese Pheasant, full particulars are given in the letter-press to the next illustration, in which it is represented. The late Mr. Russell Reeves presented to the Society in 1831 a pair of the magnificent Pheasant which bears his name, and they actually bred in the Menagerie, although the produce was unfortunately lost.

The Chinese or true Ring-necked Pheasant, which is figured in the accompanying plate, has also been successfully imported, and is now well known in England, having been turned out in several preserves in the midland counties, and there hybridized with our common species, *Phasianus colchicus*. It is a smaller bird than the latter, and rather more brightly and beautifully coloured, though closely resembling it in general plumage.

The native country of the *P. torquatus* is China, where it represents our ordinary species. It is found all through the magnificent territory recently acquired by the Russians on the river Amoor, as has been ascertained by the scientific expedition to those countries, despatched by the Imperial Academy of Sciences of St. Petersburg, under the command of Herr Von Schrenck. It is also, in all probability, the bird spoken of by Pallas, as the Mongolian variety of the Common Pheasant, and, if so, extends far into inner Asia along the southern portion of the great Mongolian Desert. In the Altai mountains it is replaced by the still more beautiful *Phasianus mongolicus* of Professor Brandt.



THE CHINESE PHEASANT.

PHASIANUS TORQUATUS

THE JAPANESE PHEASANT.

Phasianus versicolor.

PLATE XXXVIII.

In the spring of 1840, M. Westerman, the Director of the Zoological Gardens of Amsterdam, brought to Knowsley the only pair of Japanese Pheasants which have, as yet, reached Europe in a living state. The female, after beginning to lay, from some unforeseen cause, had died in the course of the journey, and the late Lord Derby, who justly attached great value to the acquisition he was about to make, was only put into possession of the male. This bird, as if to prove the hardiness of the species, lived in his lordship's menagerie until its dissolution in 1851, and then became the property of Prince Demidoff, with seven young birds. These by care and perseverance had been so judiciously bred as to have all but lost the stain of the common Pheasant (*Phasianus colchicus*), with which the old male had been paired, on the death of the Japanese female. They, in point of fact, so closely resembled the original bird, that it was impossible to distinguish their plumage from skins of the true *P. versicolor* received from Japan.

A pair of these birds were left by Prince Demidoff in the hands of the late Mr. Thompson, and from them both eggs and young birds have been distributed to various amateurs and members of this Society. It is believed, however, that the late Duke of Leeds, and M. Jacques Vekemans, the talented and energetic Director of the Zoological Gardens at Antwerp, have alone been successful in perpetuating this approximately pure breed.

The difficulty which has arisen in respect to the continued reproduction of these birds is obviously the want of new blood, for experiments have already demonstrated that they are perfectly capable of enduring the vicissitudes of our climate, that they are as prolific as their congeners, and that when crossed with the ordinary Pheasant of our coverts, they effect the most sensible improvement in the weight and beauty of the produce.

After the purchase of the old male by Prince Demidoff, Mr. J. H. Gurney, M.P., secured twelve half-bred birds which had been hatched in 1850 and 1851, and placed them on his estates at Easton, in Norfolk. From these and the common Pheasants at Easton and its neighbourhood, have emanated some extremely fine hybrid birds, which have now extended themselves considerably in the county. It is probable that a similar race may have become established at Stubton, in Lincolnshire, where a pair of half bred birds were turned out by the late Sir Robert Heron. The same experiment was tried in Knowsley Park, but from some adverse circumstances, probably in the character of the soil, they did not thrive in anything like the degree which so remarkably characterized their removal to Norfolk.

The Japanese Pheasant is at present deficient to the collection, but through the exertions of Mr. Rutherford Alcock, our Consul-General for Japan, who has taken great interest in the matter, the Society are expecting shortly to receive fresh pairs of this bird and of Sömmering's Pheasant, which has never yet been brought to England in a living state.



THE JAPAN PHEASANT.

PHASIANUS VERSICOLOR.

HORSFIELD'S KALEEGE.

Gallopasis horsfieldii.

PLATE XXXIX.

LIVING examples of the Purple or Horsfield's Kaleege were first received by the Society in the year 1850, through Captain Nesbitt, who then commanded the *Nile* in the Indian fleet of Messrs. Green and Co., but as males were only obtained at that time, no results followed.

In the month of July, 1857, a large collection of Indian Gallinaeous birds reached the Society. It had been accumulated from various quarters by the influence of Lord Canning and the co-operation of Lord W. Hay, Major W. E. Hay, Major Ramsay, Mr. Keene, Mr. Brian Hodgson, Captain James, then Acting Resident at Darjeeling, and other gentlemen holding appointments in the Indian Civil and Military Services. The species included in this collection which survived the voyage, were

THE CHEER	<i>Catreus wallichii.</i>
HORSFIELD'S KALEEGE	<i>Gallopasis horsfieldii.</i>
THE BLACK-BACKED KALEEGE	<i>Gallopasis melanotus.</i>
THE WHITE-CRESTED KALEEGE	<i>Gallopasis albocristatus.</i>
THE MONAL	<i>Lophophorus impeyanus.</i>
THE POLYPLECTRON	<i>Polyplectron chinquis.</i>

Of Horsfield's Kaleege there was a single pair. Almost as soon as they were placed in the aviary eggs were laid, and notwithstanding the lateness of the season, nine young birds were hatched out and successfully reared in the first year. The whole of these young birds survived the winter, which, from the late period at which they were hatched, was encountered under peculiarly disadvantageous circumstances; and thus gave satisfactory proofs of their hardiness, and good grounds for supposing them well suited to resist the vicissitudes of European weather.

These expectations have not been disappointed, for the Horsfield's Kaleege and its congeners the Black-backed and White-crested Kaleeges, as well as the Cheer and the Impeyan Pheasant, have continued to breed, under the Society's care, every season since their arrival; and we have great hopes of being ultimately successful in establishing these splendid birds as permanent denizens of the British islands.

To show the actual state of facts relative to the breeding of these birds in the Society's establishment, I subjoin the following table, which gives the results of the breeding-seasons of 1858, 1859, and 1860, compared together:—

Date.		No. of Hens.	Eggs laid.	Young hatched.	Reared.	Died.
1858.	Black-backed Kaleege	5	184	63	61	2
"	White-crested Kaleege	1		6	5	1
"	Purple Kaleege	1		19	17	2
"	Cheer Pheasant	2		26	25	1
"	Impeyan Pheasant	2		12	8	4
		11	184	126	116	10
1859.	Black-backed Kaleege	3	59	18	16	2
"	White-crested Kaleege	2	33	12	9	3
"	Purple Kaleege	1	22	8	7	1
"	Cheer Pheasant	2	44	19	15	4
"	Impeyan Pheasant	2	10	5	3	2
		10	168	62	50	12
1860.	Black-backed Kaleege	3	47	27	14	13
"	White-crested Kaleege	2	24	20	12	8
"	Purple Kaleege	1	17	11	8	3
"	Cheer Pheasant	1	20	13	7	6
"	Impeyan Pheasant	3	33	11	4	7
		10	141	82	45	37

The young birds bred every year are parted with to the Fellows of the Society and other persons who make application for them, and there has hitherto been found little difficulty in the disposal of them. It may be mentioned that Lord Hill has already turned out some ten or twelve pairs of the Black-backed Kaleege, bred from stock originating in the Society's establishment, in his coverts at Hawkstone, in Shropshire, and gives a very favourable report of the way in which they have adapted themselves to their new home.

The accompanying plate represents the adult male of the Horsfield's Kaleege, or Purple Pheasant, as the species is called at Darjeeling. The female closely resembles those of the other two species of Kaleege, but is of a deeper and more purple brown than they are, and is somewhat larger and heavier. The eggs are of a beautiful pale purplish tint, minutely dotted with white, as may be seen on reference to the figures of them and of the eggs of the other introduced Indian Pheasants, which are given in the Society's "Illustrated Proceedings" for 1858.



HORSFIELD'S KALEEGE.

GALLOPHAPS HORSFIELDII.

THE CASPIAN SNOW-PARTRIDGE.

Tetraogallus caspius.

PLATE XL.

THE first Caspian Snow-Partridge exhibited in the Society's Menagerie was received in 1842, as a present from E. W. Bonham, Esq., of H.M. Consular Service. It was procured in the vicinity of Teheran, in Persia, and reached England along with the first examples of a new species of Partridge, which bears Mr. Bonham's name, having been described by Mr. Fraser, in the Society's "Proceedings" in 1843, as *Perdix bonhami*. In 1852 the bird from which Mr. Wolf's study was made arrived in the Gardens, having been transmitted to the Society from the same country by R. Stevens, Esq., Her Majesty's Consul at Tabreez. It is very unfortunate that its companion died on the passage, as there is scarcely a doubt that all the species of this group, which is a closely-allied genus to that containing the Impeyan Pheasant, or Monaul, are well adapted for acclimatization in this country. Since the death of these specimens, the Society has not been fortunate enough to obtain others of the same bird.

The Snow-Partridges now known to science are four in number, each inhabiting a different tract of the mountainous districts of Asia. While the present bird is found on the higher regions of Asia Minor and Persia, the Altai mountains are tenanted by a distinct form—the *Tetraogallus altaicus*, or Altai Snow-Partridge, and in the Himalayas two species are found, one of which (*T. himalayensis*) inhabits more particularly the southern, and the other (*T. tibetanus*) the northern slope of the great range. All these four birds are figured in a recent number of Mr. Gould's "Birds of Asia," from which work I venture to copy the following short account of the habits of the Caspian Snow-Partridge in a state of nature, as observed by a Russian naturalist in the Caucæus:—

"This species builds on the highest summits of the rocky mountains of the Caucæus, preferring altogether the snowy regions, which it never quits; and when we have attempted to acclimatize the young birds in the plains of Kahetia, they have not survived the spring. It runs along the rocks and the ledges of the precipices with great agility, and rises with a great cry at the least danger, so that the most skilful sportsman cannot approach within shot except under cover of the mist. It lives in societies of from six to ten individuals, becoming the inseparable companion to the Goat, on the excrement of which it feeds during the winter months. In autumn it grows very fat, and its flesh resembles that of the Common Partridge. In the crop of this gallinaceous bird I have found a great quantity of sand and of small stones, mixed with all kinds of seeds of Alpine plants."

I may add that this fine Snow-Partridge is said to occur also in tolerable abundance in the Cilician Taurus—a country easily accessible from Tarsus—(a port touched at by the steamers of the Levant line from Cyprus and Rhodes), to which fact we invite the attention of any wandering sportsman or naturalist who may wish to know where to betake himself in search of a new sort of game.



THE CASPIAN SNOW-PARTRIDGE.

TETRAOGALLUS CASPIUS.

THE PAINTED SPUR-FOWL.

Galloperdix lunulosa.

PLATE XLI.

THE Spur-Fowls, or Spurred Partridges of India, forming the genus *Galloperdix*, are remarkable for the formidable double spurs with which they are armed, as well as for their beautiful shape and elegant plumage.

Three species of this group occur in various parts of our Eastern possessions, the present bird being found in the Ghauts of Southern India; the Rufous Spur-Fowl (*G. spadiceus*) ranging pretty generally over the whole peninsula; and the Ceylonese Spur-Fowl (*G. ceylonensis*) taking the place of the former two in Ceylon. All three of these birds are figured in the sixth part of Mr. Gould's splendid work on the "Birds of Asia."

The Zoological Society received a single male example of the Painted Spur-Fowl in the early part of 1853, and retained it in a living state for several months in their Gardens, where its sprightly actions and fine plumage attracted general notice. Since its death, unfortunately, it has not been replaced by others.

Mr. Jerdon, of Madras, has given figures of the male and female of this bird in his "Illustrations of Indian Ornithology." The following are the notes of this experienced observer, concerning its habits in a state of nature.

"In Southern India I have only found this very handsome Spur-Fowl in the jungles of the Eastern Ghauts, and in some of the spurs that jut out from them both above and below. M. Delessert procured it in the neighbourhood of Pondicherry. I obtained many specimens from the Ghauts inland from Nellore, and I have been told that it is found near Bellary, Caddapah, and Hyderabad. Farther north I never saw it from Goomsoor, and it is unknown in Bengal and the Himalayas. General Hardwicke procured it, I believe, in the north-west of India.

"It associates in small flocks, keeping to the low shrubs and brushwood, and seeking its food among fallen leaves and low herbage. I kept several individuals of this species alive for some time, and found that it is a most pugnacious and quarrelsome bird. It carries its tail erect like the Jungle Fowl, to which the natives invariably assert its affinity, as they also do of *G. spadiceus*.

"I have found that both the Spotted and Common Spur-Fowl feed much on insect food in the wild state, especially on the larvæ of two or three kinds of wood-bug (*Reduvius*), so abundant in most of our jungles."



THE PAINTED SPUR-FOWL.

GALLOPERDIX LUNULOSA.

THE AMERICAN RHEA.

Rhea americana.

PLATE XLII.

IN the Pampas of South America the place of the Ostrich (which is entirely confined to Africa and the most nearly adjoining districts of Western Asia), is taken by the birds called Nandus, or Rheas, of which three different species are now known to exist. Though generally much resembling the African Ostriches, these birds, as is usually, we may say almost invariably, the case with American representatives of types belonging to the Old World, are inferior in size and weaker in form, and may further be immediately distinguished by the presence of an additional toe; the true Ostriches only possessing two toes to each foot.

The Zoological Society's series of living Struthious Birds—the order which includes the Ostriches and Rheas, as well as the Cassowaries and Emeus, and their celebrated allies the *Apteryges*, or wingless birds of New Zealand—is one of the most complete portions of their extensive collection of living animals. Besides several specimens of the Common Rhea of different ages and of each sex, the series embraces a fine male of the Darwin's Rhea—believed to be the first example of this bird brought living to Europe, and the only known specimen of a third smaller species, which has lately been distinguished from the two former, and described in the Society's "Proceedings" as the Long-billed Rhea (*Rhea macrorhyncha*.)*

The American Rhea frequently lays eggs in captivity. On several occasions these have been hatched in the artificial incubator kept in the Society's Gardens, and the young birds reared. At the present time (February, 1861), we have a young American Rhea, hatched in the Gardens last summer, from an egg laid by a bird in the possession of Augustus Smith, Esq., M.P., which bids fair to do well. Its companion, born at the same time, and carefully nurtured during several months by a Cochin-China hen (the sudden death of which caused no small grief to its foster-children), perished from an accident which not unfrequently happens to young Struthious birds bred in captivity. Their bones, owing to some defect in the system of feeding, which we have not yet been able to remedy, do not become sufficiently ossified, and a sudden turn of the birds when running, is apt to produce a compound fracture of the legs, from which recovery is scarcely possible.

Mr. Wolf's drawing contains a group of these interesting little *Struthionidæ*, as they might appear in their native Pampas, and gives an accurate representation of the immature dress of this Rhea. The old hen is in the background, and her mate not very far off.

* See the "Proceedings" of the Society for 1860, p. 207, and the "Transactions," vol. iv., part 7.



THE AMERICAN RHEA.

RHEA AMERICANA.

THE MOORUK.

Casuarus bennetti.

PLATE XLIII.

UNTIL these last few years the Common Cassowary of the Moluccas (*Casuarus galeatus*) was the only known representative of the section of the Struthious or Ostrich-like birds to which it belongs, although the existence of a second species of the genus in Northern Australia had been more than suspected. In the Island of New Britain, however, adjacent to New Guinea, in the year 1857, the commander of a small Australian vessel trading for tortoiseshell, obtained a living bird of this group, of immature age, which he carried away with him, and succeeded in landing safely at Sydney. Dr. G. Bennett, a Fellow of the Society resident at Sydney, for whose active support the Society have much reason to be grateful, succeeded in purchasing this bird, which he recognized as being of a new species, from Captain Devlin, and after sending home a drawing of it by the first mail, dispatched the living original, in the care of Dr. Plomley, by the earliest subsequent opportunity. Whatever doubt might have existed on the receipt of the drawing, as to the distinctness of this species from the Common Cassowary, gave way to certainty on the arrival of the Bird. A young Common Cassowary of nearly the same age was placed at its side, and the difference of form in the casque, the absence of the throat-wattles, and the different proportions of the legs, at once settled the correctness of Dr. Bennett's views on this subject. All that Captain Devlin brought in the shape of information, was that, as far as he knew, this Bird is limited to the Island of New Britain, that it is tolerably numerous there, and that its native name is "Mooruk"—evidently derived from its cry resembling that sound, or something very nearly approaching to it. Dr. Bennett's note, and the drawing of the Bird, by Mr. Angas, which accompanied it, were brought before the Zoological Society, in December 1857, by Mr. Gould, who proposed to commemorate this discovery by bestowing upon the species the name of *Casuarus bennetti*, a compliment, such as it is, to which Dr. Bennett's zeal and liberality justly entitle him.

The Mooruk has changed in colour considerably since its arrival in England, and is evidently fast approaching the jetty black of the *C. galeatus*. Two more examples of the same species were presented by Dr. Bennett in the month of May, 1859, and as the individual first received proves to be a female, and commenced laying eggs in 1860, we have some hopes of being able to breed specimens of this remarkable bird in this country.

Since the discovery of the Mooruk in 1857, two further additions have been made to the list of Cassowaries, and singularly enough, in both cases from birds living in captivity. One of these species has been lately described by Mr. Blyth, the Curator of the Asiatic Society's Museum at Calcutta, from a specimen living in a Menagerie in that city, and named *Casuarus uni-appendiculatus*, its distinguishing characteristic being the single pendulous wattle which adorns its throat. The other rests upon an immature bird recently acquired by the Zoological Society, which has the throat-wattles separate and situated far apart, and which I have therefore proposed to call *bicarunculatus*, from this circumstance. It is probable that other differences will develop themselves as the bird grows up.

The islands whence these two new Cassowaries were brought are not, as yet, accurately known, but when proper investigations have been made, it will, doubtless, be found that each of them inhabits a particular locality, and does not intrude upon its neighbour's territory.

Mr. Wolf's front figure in the accompanying plate represents the first Mooruk received by the Society in the state of plumage in which it appeared in the autumn of 1858. The figures in the background exhibit some of the most characteristic attitudes of this species.



THE MOORUK.

CASUARIUS BENNETTI

MANTELL'S APTERYX.

Apteryx mantelli.

PLATE XLIV.

THE existence in New Zealand of the singular form of wingless birds generally known as the *Apteryx* or Kiwi, was first brought to our knowledge by the late Dr. Shaw; a specimen procured about the year 1812, on the south coast of the Middle island, by Captain Bareley, of the ship *Providence*, having been described by that author, in his "Naturalist's Miscellany," as the *Apteryx australis*. This bird afterwards passed into the collection of the late Earl of Derby, and was for many years the only example of this peculiar being to be found in any of the Museums of Europe.

It has lately been shown by Mr. Bartlett, in a communication made to the Zoological Society, that the *Apteryx* now generally known in this country is not the true *Apteryx australis* of the Middle island of New Zealand, but a different species, believed to be peculiar to the northern island, which he has proposed to call *Apteryx mantelli*, in honour of the late distinguished Geologist, Dr. Mantell. It is true that the two birds are very much alike, but they seem to be separated by constant differences which, though slight, are sufficient to distinguish them. A third member of this group, Owen's *Apteryx* (*Apteryx owenii*), is also found on the Middle island, and there is every reason to believe that a fourth species, of much larger dimensions, which has been called by anticipation *Apteryx maxima*, is still existing in the mountainous ranges of the same island, although specimens of it have not yet been subjected to scientific examination.

The female *Apteryx* now in the collection of the Zoological Society is believed to be the only bird of the sort ever brought to Europe in a living state. It was obtained for the Society, in 1852, by Lieut.-Governor Eyre, and conveyed to England by Captain Erskine, R.N., then in command of H.M.S. *Havannah*. After being nearly seven years in the Gardens, this bird laid an egg, on the 9th of June, 1859. The egg, when deposited, weighed 14½ oz., the contents thereof weighing 13½ oz. The weight of the living bird was ascertained to be 60 oz., so that the egg of this species appears to be nearly equal to one-fourth the whole weight of the bird. The same female has since laid several other eggs of nearly similar weight and dimensions.

The *Apteryx* is strictly nocturnal in its habits, and never shows itself voluntarily by daylight. Upon being brought out by its keeper for exhibition to visitors, and fed with a tit-bit or two in the shape of some living earth-worms, it never fails, on the moment of its release, to run back to its concealment of straw, where it remains until again summoned forth to gratify the curiosity of the public. If a visit, however, be paid to it during the night, it will be found running about and lively enough, searching into every crevice and corner with its long, sensitive bill. This bird has now lived in perfect health upwards of nine years in the Society's Gardens, and could other examples of it be obtained, there is little reason to doubt that the species might be successfully reproduced in this country.



MANTELL'S APTERYX.

APTERYX MANTELLI

THE GREAT BUSTARD.

Otis tarda.

PLATE XLV.

It is greatly to be regretted that the recent progress in agriculture has so altered the former haunts of the Bustard, one of the most striking species belonging to the aboriginal Fauna of Great Britain, that this noble bird can now no longer be said to exist in a wild state on our wolds and plains, of which it was within the memory of man the most striking ornament. The most recent instances of its capture in this country are either those of imported birds escaped from confinement, or of stragglers from the localities on the Continent where the species still lingers.

The birds which supply the Menagerie of the Society have been generally reared from the nest in Eastern Germany, where considerable numbers are still found in the open plains. It is quite possible that in a suitable locality, and under sufficiently natural conditions, the Bustard might be managed with sufficient success to secure its breeding in captivity, as a first step towards its domestication. But, although great pains have been taken with the examples under the Society's care and elsewhere, there has, as yet, we believe, been no instance of this having been effected. The birds have, nevertheless, been preserved in good health in the Gardens in Regent's Park; and the males, at the approach of the breeding season, sometimes exhibit themselves in the most singular attitudes. These have been admirably caught by Mr. Wolf, and are portrayed in the accompanying drawing, which is, I believe, the first published record of these grotesque postures.



THE GREAT BUSTARD.

OTIS TARDA.

THE MANTCHURIAN CRANE.

Grus montignesia.

PLATE XLVI.

M. DE MONTIGNY, when Consul for France at Shanghai, about ten years ago, was charged by his Government with a commission to obtain a herd of Yaks—the domestic cattle of the high plains of Central Asia—for the purpose of testing their capability of being acclimatized in Europe. In the year 1854, M. de Montigny having succeeded in securing six of these interesting animals, brought them with him on his return to Paris, as likewise a pair of magnificent Cranes, which had been captured for him by the persons employed in collecting the Yaks.

On the arrival of M. de Montigny in Paris, the late Prince Charles Bonaparte, ever anxious to do honour to merit, proposed to name these birds, which he then believed to be undescribed, *Grus montignesia*. It has been since suggested that this Crane is the *Grus japonensis* of Brisson, and, probably, the *Grus viridirostris* of Vieillot. Still, as the first of these appellations indicates a wrong locality, and as there is some doubt about the applicability of the second, it is, perhaps, better for the present to retain Prince Bonaparte's designation for the species.

Some years since Sir John Bowring obtained a pair of these Cranes in China, and transmitted them to England as a present to Her Majesty the Queen. Having been shortly afterwards added to the many munificent donations bestowed by Her Majesty upon the Zoological Society, they afforded the opportunity for a careful and elaborate study of the living bird by Mr. Wolf, the results of which are given in the accompanying plate. This is the first drawing which has been published of this species, although representations of it constantly occur in the pictures of the Chinese, and even in their paper-hangings, and it is said to be a sacred bird of their singular religion.

The Mantchurian Cranes bred in the Menagerie attached to the Museum at Paris, for three consecutive years, and one of the young birds produced there in 1855, is still, with the two presented by Her Majesty, in the Society's Collection, the mate of the former having been killed by an accident soon after its arrival in 1856. Every accommodation has been given to these five birds by the Zoological Society, in the hope of inducing them to follow the example of the pair in the Jardin des Plantes, but though eggs have been laid these last two years, and the female has manifested an inclination to sit, no young ones have yet been produced in the Regent's Park.

Of the group of true Cranes, to which the present species belongs, the Society's Collection likewise embraces examples of the Common Crane of Europe, the Australian Crane, and the Saras Crane of India. The American Cranes (*Grus americana* and *G. canadensis*), are at present, unfortunately, *desiderata* to the Menagerie.



THE MANTCHURIAN CRANE.

GRUS MONTIGNESI.

THE AUSTRALIAN MYCTERIA.

Mycteria australis.

PLATE XLVII.

THE Storks of the genus *Mycteria*, or "Jabirus," as they are sometimes called, although this name is more strictly applicable to the single American species, are few in number, but widely distributed over the earth's surface. The fine species which forms the subject of the present illustration is commonly supposed to be found throughout the eastern portion of Southern Asia, and to extend into Australia, being included by Mr. Gould in his great work on the birds of the latter country. There is some doubt, however, as to whether the Indian and Australian Jabirus are quite identical, and it is, therefore, proper to state that the example living in the Gardens of the Zoological Society in 1854, and figured in two attitudes in the accompanying plate, is believed to have been procured in Malacca. It lived some months in the Society's Menagerie, and since its death has unfortunately not been replaced by others.

The South American Jabiru (*M. americana*), of which the Society have also formerly possessed specimens, is of still greater stature than the present species, standing nearly five feet in height, whereas the Australian Jabiru does not much exceed four feet from the ground.

The third bird usually arranged along with the *Mycteria*, the *M. senegalensis* or "Saddle-billed Stork," as it is often called, of the interior of Africa, is perhaps of more striking appearance than either of the foregoing species—its parti-coloured bill and legs imparting to it a very singular aspect. Mr. John Petherick, H.B.M.'s Consul at Chartoum, who brought the *Baleniceps* living to England, obtained several of these latter birds from the Upper Nile, and despatched them to this country, but they all unfortunately sank beneath the hardships of the ten months' journey from the centre of Africa.



THE AUSTRALIAN MYCTERIA.

MYCTERIA AUSTRALIS.

THE BLACK-NECKED SWAN.

Cygnus nigricollis.

PLATE XLVIII.

THIS species of Swan, which has now bred several times in the Society's Gardens, is certainly the most brilliant addition to our Water fowl which has been effected since attention first began to be paid to the important subject of acclimatization. Equally beautiful on the water and in the air, the contrast of colour is so remarkable, that although the smallest of the genus, with the exception of the *Cygnus coscoroba*, likewise an inhabitant of the coasts of South America, the Black-necked Swan produces a much more striking effect than any of its congeners.

The geographical range of this bird extends from Chili across the mainland of South America to the Falkland Islands; and probably to a considerable distance northward of these Islands on the eastern coast of the continent.

The first importation of the Black-necked Swan was effected by the exertions of Admiral Hornby. When this officer was in command on the Pacific Station, he succeeded in sending home at different periods to the late Earl of Derby, eight individuals of this species, of which six were living at the dispersion of the Knowsley collection in 1851. The present Earl of Derby presented a pair of these birds to Her Majesty the Queen, and the two remaining pairs passed into the possession of the Zoological Society. They, however, for several seasons, made no attempt at reproduction, and one of them having died, the apparent chance of continuing the species depended on one pair. Fortunately, in the year 1857, these not only made a nest, as had been done in 1856, but hatched out four young birds, which rapidly arrived at full size and colour, and at the end of the autumn could scarcely be distinguished from their parents. The same success occurred in 1858, with the fortunate and singular result, that the four birds of 1857 were all males, and the birds of 1858 females.

Captain the Hon. C. E. Harris, while Consul-General in Chili, took great pains to assist the Society's views in obtaining additional specimens of this desirable bird, whose proved power of accommodating itself to the climate of England, now makes it doubly valuable. Captain Harris succeeded in sending safely home one pair of Black-necked Swans, under the care of Captain Carmichael, of the mercantile marine, to whose skill on the voyage much praise is due; but accident deprived the Society of any practical advantage from this pair of birds, the male having died, after living about twelve months in the Gardens.

Two pairs of the Black-necked Swan, bred in the Society's Gardens, are at present in the possession of the Société Imperiale d'Acclimatation of France; a third pair was parted with to Samuel Gurney, Esq., M.P., and a fourth pair, bred in 1859, by the same parents, to the Viscount Powerscourt. With the exception of the two pairs retained by the Society, these are believed to be the only individuals of the species now living in Europe.



THE BLACK-NECKED SWAN.

CYGNUS NIGRICOLLIS.

THE ASHY-HEADED GOOSE.

Chloephaga poliocephala.

PLATE XLIX.

THIS beautiful Goose was first introduced into England by the late Earl of Derby, who succeeded, with the assistance of Admiral Hornby and other friends, in importing several specimens of it from the southern extremity of America, where it is said to be a common species.

At the dissolution of the Knowsley Menagerie, in the autumn of 1851, the Zoological Society obtained by purchase a single pair of these birds, which had been imported by Lord Derby, in the previous year. This pair bred in the Society's Gardens in the following spring, five young birds having been hatched out on the 5th of May, 1853, and the same pair or their produce have continued to breed with more or less success every year since that period, in our establishment.

Until the year 1857 this goose was commonly called the "Magellanic Goose," and such was the name employed for it in the first issue of these illustrations, and in the temporary letter-press which accompanied them. The receipt, however, in the spring of that year, of specimens of the true Magellanic or "Upland" Goose, of the Falkland Islands, enabled me to correct this error, and to show that the proper title of this bird is the "Ashy-headed Goose" (*Chloephaga poliocephala*), as it was termed by Mr. G. R. Gray, in 1844.*

In the Magellanic Goose, of which the Society now possess several specimens, the sexes are coloured quite differently, the female being brown where the male is pure white, and the legs being yellow in the former and black in the latter. In the Ashy-headed Goose, on the contrary, there is no sexual difference exemplified in the plumage, but the young birds of the first year, as represented in the front figures of the accompanying plate, do not acquire the fine full ruddy breast of the adults, which is well shown in two of the smaller figures in the background.

Both the Ashy-headed and the Magellanic Geese, however, in spite of these differences, belong to the same group, which, differing slightly from the Barnacle or Bernacle Geese of Europe, has been separated from them by Mr. Eyton, in his Monograph on the *Anatidæ*, and has received the name of *Chloephaga*, or Grasseater—not inappropriately given, as they are eminently grazing birds, and enter the water almost as seldom as the *Cereopsis* of New Holland.

A third species of the same form is the now well-known Sandwich Island Goose (*Chloephaga sandrichensis*), introduced into this country in 1829, by the late Lady Glengall. But the finest and most recent addition to this eminently "acclimatizable" group is the Ruddy-headed Goose (*C. rubidiceps*), of the Falkland Islands, where it is commonly known by the name of the "Brent Goose." The latter bird, a very beautiful species, is closely allied to the Ashy-headed Goose (which is very common on the adjacent shores of South America, but occurs only as a straggler in the Falklands) and has also both sexes similarly coloured. It was only first imported into England in 1860, through the exertions of Capt. C. C. Abbott, late in command of detachments at Port Stanley, and forms a brilliant addition to the Society's full series of hardy waterfowl.

* See "Proceedings of the Zoological Society," 1857, p. 128, and 1858, p. 289.



THE ASHY-HEADED GOOSE.

CHLCEPHAGA POLICEPHALA.

THE GREEN BOA.

Xiphosoma caninum.

PLATE L.

THE term Boa is generally used for the whole family of *Boidæ*, the most highly organized division of the non-venomous Snakes. The Pythons of the Old World are the largest in dimension of this group, though in colouring they are perhaps surpassed by the fine Boas of the New World. Amongst the latter the present Green Boa, an example of which was living for a short time in the Society's Menagerie some years since, is remarkable for elegance of shape and beauty of colour.

The stronghold of the Boas is the tropical forest, where they hang coiled upon the gigantic trees which overhang a pool or river. They feed at intervals more or less protracted, depending on the size of their last victim, and the temperature in which they are placed. The organization of the Boas is directed to the slaughter of their prey by compression, and to this end are given them the enormous dimensions and power of muscle, which, even in the comparatively undeveloped specimens seen in our Menageries, excite our admiration and our wonder.

The Green Boa inhabits the tropical forests of the continent of South America, extending from Guiana into Brazil, as far south as Rio de Janeiro. It does not attain to the great size of some of the Pythons, the largest individuals in the collection of the British Museum not much exceeding four feet in length. It appears to be a good swimmer and fond of the water. Spix, in his work on Brazilian Serpents, mentions that he captured a specimen of it in the middle of the Rio Negro, and M. M. Duméril and Bibron speak of an individual of this species having been observed swimming in the harbour of Rio.



THE GREEN BOA.

XIPHOSOMA CANINUM.

